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STOMACH CARCINOMA

ITS MEDICAL ASPECTS *

JOSEPH COLT BLOODGOOD, M.D.

BALTIMORE

These observations are based on 184 cases of carcinoma of the stomach which have been observed in the Surgical Pathological Laboratory of the Johns Hopkins Hospital during a period of almost twenty-five years. The majority of the patients come from the surgical clinic of Professor Halsted of the Johns Hopkins Hospital. All of the cases recorded in this surgical clinic are here. A number of cases have been received from Dr. Finney's clinic at the Union Protestant Hospital. All of the cases observed in the surgical clinic of St. Agnes Hospital are included in this list, and there are a few from other hospitals.

These 184 cases may not represent the entire experience of the surgeons connected with the Johns Hopkins Hospital, but it is my opinion that they represent it sufficiently to give a clear picture of our experience with cancer of the stomach.

Fig. 1 (Case 1).—External view of the mass removed.

I have gathered from the reading of the literature that those surgical clinics, in which the total number of cancers of the stomach was larger than the total number of ulcers of the stomach, observed a larger percentage of inoperable cancer and a smaller percentage of cures among the cases in which resection of the stomach was possible, than those clinics in which the number of ulcers of the stomach exceeded that of cancer.

This is true for the cases which I have recorded.

In the Surgical Pathological Laboratory up to date our figures are as follows: stomach ulcer, 132 cases; stomach carcinoma, 184 cases. Cancer, therefore, has been more frequently observed than ulcer.

The figures as to the proportion of operable and inoperable cases of cancer are: no operation, 45 cases; exploratory laparotomy, 49 cases; gastro-enterostomy, 41 cases; total inoperable cases, 135; resection, operable cases, 49.

This demonstrates that in only 26 per cent. of the cases has the cancer of the stomach been operable, in 74 per cent. inoperable.

Table 1 illustrates the percentage of operable and inoperable cases during five-year periods from 1890 to 1915.

The first cancer of the stomach was observed in 1890. The first gastro-enterostomy for cancer was performed in November, 1892. The first exploration for inoperable cancer of the stomach was done in 1895, the first resection in 1898.

The table clearly illustrates that the experience of this clinic with cancer of the stomach really did not begin until 1905—ten years ago. From 1890 to 1905, a period of fifteen years, there were but thirty-five cases of cancer of the stomach, of which nine, or 25 per cent., were operable. In the following five-year peoriod, from 1905 to 1910, the total number of cases increased rapidly to seventy-six, of which only twelve, about 16 per cent., were operable. More cases, therefore, of cancer of the stomach were referred to the surgeon for consultation or operation, and we observe that in twenty-one cases the inoperability was so clear than no operation was done.

Fortunately, in the next five years — from 1910 to 1915 — a distinct change has taken place. The total

* Address of the President before the American Gastro-Enterological Society, Baltimore, May 10, 1915.

TABLE 1.—PERCENTAGE OF OPERABLE AND INOPERABLE CASES

	1890-1895	1895-1900	1900-1905	1905-1910	1910-1915	Totals
No operation	1	3	8	21	12	45
Exploration	—	4	3	22	20	49
Gastro-enterostomy	2	2	2	21	13	41
Total inoperable	3	9	13	64	45	134
Resections, operable	—	3	6	12	28	49
Totals	3	12	19	76	73	183

number of cases so far is seventy-three, of which twenty-eight, or 39 per cent., were operable. These figures surely demonstrate that patients with cancer of the stomach are being recognized earlier and referred to surgical treatment at a more favorable period. The no-operation cases have decreased from twenty-one to twelve, the gastro-enterostomies from twenty-one to thirteen cases.

Here we have the first evidence of a favorable turn in events.

I have also observed that during these five years, for the first time the total number of ulcer cases was greater than the total number of cancers. These figures will be brought out more elaborately in a second paper.

Up until 1910, among twenty-one cases of resection, there have been two cures — a little less than 10 per cent. of the operable cases, or two cures among a total of 111 cases, or 1.7 per cent.

Up to the present time, among the twenty-eight cases of resection between the periods of 1910-1915, there is one patient still living in whose case it will be five years since the operation in August, 1915.

If the patients still living in this group remain well, the percentage of cures may be increased from less than 10 to more than 20 per cent.

These figures, although small, seem to confirm my impression gathered from the literature, that when the total number of ulcers of the stomach in a surgical clinic exceeds the total number of cancers, the percentage of operable cases in the latter group increases, and with this there is an increase in the number of five-year cures.

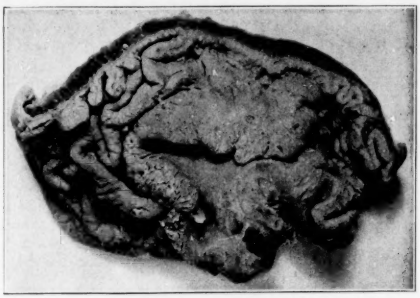


Fig. 2 (Case 1).—Surface view of the longitudinal section.

Fig. 3 (Case 1).—Adenocarcinoma.

I do not wish to enter here into the discussion of the relation of ulcer to cancer of the stomach, but the figures of these observations are very suggestive. At least they suggest a definite practical way by which the number of cures of cancer of the stomach may be increased.

Table 2 attempts to illustrate the relation of the duration of the disease to the operability of the cancer. Of course, in computing a table of this kind there is considerable opportunity for error, but if I have made mistakes in this table, it is on the side of shortening rather than lengthening the duration of the disease. I have excluded statements such as "year, or years, of indigestion," or a history of one or more previous attacks that suggested gastric ulcer. I have taken as the duration of the disease the period of continuous symptoms. The chief symptom has been abdominal discomfort in the region of the epigastrium aggravated by eating.

Nausea, belching, vomiting, vomiting of blood, and blood in stools, loss of weight and strength, whether present or absent, has not been considered in estimating the duration of the disease. In all of these cases, discomfort of various degrees has been noted in the history, and this discomfort has always been made worse by eating solid food.

This, therefore, is a very conservative estimation of the period of continuous symptoms.

TABLE 2.—RELATION OF DURATION OF DISEASE TO OPERABILITY OF CANCER

	1 month to 3 months	3 months to 6 months	6 months to 1 year	1 year to 2 years	2 years to 5 years	Over 5 years	Totals
No operation	6	6	5	7	6	4	34
Exploration	5	10	10	10	10	1	46
Gastro-enterostomy	8	7	14	4	5	1	39
Total inoperable	19	23	29	21	21	6	119
Resection, operable	8	7	8	6	9	2	40
Totals	27	30	37	27	30	8	159

These cases have been divided into six groups.

The most remarkable finding is that the percentage of operability is about the same in each period.

If cancer of the stomach began as cancer in every instance, it should follow that with the longer period of the disease the percentage of operable cases should decrease; but this is not so.

Fig. 4 (Case 2).—Surface view of the removed portion of the stomach.

In fact, among the cases in which the symptoms had been present only three months, the percentage of operable cases is 29. In the next period of three months it falls to 23. In the next period of six months it falls to 21. The figures 29, 23 and 21 per cent. show that with an increase in the duration of the disease, the percentage of operable cases decreases slightly; but in the next two periods, the first of from one to two years, the second from two to five years, the percentage of operable cases increased slightly, so that the figures for the cases in which the duration of the symptoms is less than three months are about the same as for those in which the duration of the disease is from two to five years—29 and 30 per cent., respectively.

Fig. 6 (Case 2).—Photomicrograph of a section through the ulcer.

In my studies of cancer situated in other localities, such as the breast, lip, tongue, rectum, colon, etc., I have found similar percentages. We have positive evidence that cancer in some individuals grows more rapidly during the same period of time than in other individuals, so that these patients, who have what may be called acute carcinoma, are forced to seek surgical aid early after the beginning of the symptoms because of the rapid growth of the neoplasm. These cases, appearing in the columns of earlier interventions, always increase the percentage of inoperable, and decrease the proportion of permanent cures. Then, again, when we can observe pretty accurately the development of cancer in a previous lesion not malignant, we know that there is no definite time at which cancer may or does develop in the precancerous lesion.

Fig. 5 (Case 2).—Longitudinal section through stomach and ulcer.

I have thoroughly investigated this in cancer of the lip.

Now, if a large number of cancers of the stomach develop in a preexisting lesion not cancer, it is quite possible that we may find operable and curable cases even when the symptoms are of relatively long duration. It seems impossible with lesions of the stomach to differentiate, especially in the early months, cancer from ulcer of the stomach, and even lesions of the stomach from abdominal lesions outside of the stomach, for example, cholecystitis and gallstones, and pancreatitis.

Table 2 impresses me as evidence in favor of the conclusion that many cases of cancer of the stomach arise in lesions of the stomach which were not originally malignant, but were most probably cases of ulcer. There is other evidence in favor of this conclusion which I will bring out in a later paper.

Table 3 gives the duration of the disease and number of cases first in single months up to six, of which there are fifty-seven cases, while in the remaining groups from six months to six years and more there are 115 cases.

This table really pictures the medical aspects. All of these patients have had continuous symptoms for from one month to six years or more. It is very difficult to find out why they finally came for surgical help. Perhaps in the largest number of cases the development of almost complete stenosis of the pylorus has forced them to seek help. This as a rule, however, is a relatively late development. In one case stenosis did develop within two months after the onset of the permanent discomfort, but this patient had had indigestion a number of years.

A few of the patients have sought help within a few months after relatively slight symptoms. These patients had all been seen by good internists and had been subjected to a most rigid examination. Most of these cases have been observed in the past five years.

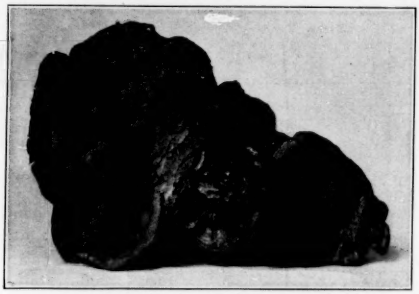


Fig. 7 (Case 3).—External surface of the mass resected.

TABLE 3.—DURATION OF DISEASE BEFORE OPERATION

Months	Cases	Years	Cases
One	2	One-half to one	48
Two	13	Two	28
Three	12	Three	15
Four	8	Four	11
Five	9	Five	5
Six	13	Six and more	8
Totals	57		115

This, it seems to me, is the key to the situation. Our adult population must be informed, with the highest authority behind it, that epigastric discomfort aggravated by eating solid food is a sufficient warning. They must be told that such symptoms by no means mean cancer, or disease that may ultimately end in cancer, but that with these warnings they should seek not treatment, but a thorough examination by a competent physician trained in the investigation of gastric diseases. They must be informed that restricted diet and some medicine will often give them relief; but if the disease is cancer, or something that may ultimately be cancer, such relieving treatment will only increase the danger. A thorough examination is the essential thing, and they must know that a thorough examination consists of repeated gastric analyses and the investigation with the fluoroscope or roentgenograms. No other examination will be sufficient.

Persons so educated with this correct information will undoubtedly have the courage to act. The responsibility, then, falls on the physician. I am confident that, after most careful clinical examination, repeated gastric analyses and Roentgen-ray studies, lesions of the stomach which should be subjected to surgery will not be overlooked, and that our comparative figures will show an increasing number of gastric ulcers, an increasing number of gastric ulcers with microscopic changes suggesting early cancer, an increasing number of operable masses in the stomach which are microscopically distinctly cancer, and an increasing number of permanent cures among the latter. With this earlier intervention, the mortality of gastrectomy will decrease.

When there are nonadherent masses in the stomach, in patients who are in good condition, resection of the lesion in the pyloric half of the stomach should have a mortality of 2 per cent. or less.

There is no doubt that today among trained surgeons the technic of resection of the stomach is far ahead of the opportunities to apply it at the most favorable period.

Inoperability, low percentage of permanent cures after resection, and the mortality of resection are chiefly dependent on delay. There seems no question that every one will be duly and sufficiently warned. If patient, physician and surgeon make no blunders, cancer of the stomach will lose its now appalling aspects.

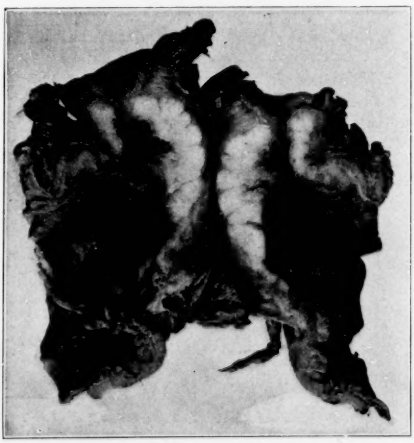


Fig. 8 (Case 3).—Longitudinal section of the mass.

The technical difficulties of resection of the stomach for cancer increase with the extent of the local growth and the localization of the growth nearer the cardia; and with this, of course, the postoperative mortality increases also. In addition, when the general condition of the patient is depressed by starvation, with the concomitant anemia and acidosis, postoperative deaths from pneumonia, embolism and anuria are more frequent.

Of the three cases apparently cured, the duration of continuous symptoms was eight months, eleven months and eleven months. In two cases, the lesion was at the pylorus, in one on the lesser curvature. These cases are as follows:

CASE 1 (Pathologic No. 7307).—Specimen sent to the laboratory by the operator, Dr. Marcella Hartwig, of Buffalo. The operation was performed in 1900. After the complete

pylorectomy, the duodenum was sutured to a new opening in the posterior wall of the stomach—Kocher's anastomosis.

The patient was a white woman aged 50; there had been definite continuous gastric symptoms for eight months with gradually increasing symptoms of stenosis and loss of weight. At the examination there was a movable, palpable mass in the region of the pylorus. At operation there were no adhesions and no enlarged glands. There was no difficulty in the resection and suture.

Figure 1 pictures the external view of the mass removed, and Figure 2 the surface view of the longitudinal section. One can easily see the uninvolved duodenum and stomach to each side of the tumor. The tumor is a somewhat fungous mass, but it has not infiltrated through the submucosa. Microscopically (Fig. 3) it is an adenocarcinoma.

I am informed by Dr. Hartwig that this patient died seven years after operation with symptoms of abscess of the kidney and no evidence of recurrence of the carcinoma.

CASE 2 (Pathologic No. 8679).—The operation was performed by Dr. Miller, the resident surgeon of the Johns Hopkins Hospital, Jan. 4, 1908. The operation consisted of resection of the pyloric end of the stomach, closure of the duodenum and stomach, and a posterior gastroenterostomy, a method known in the literature as Billroth's II.

Figure 4 illustrates the surface view of the removed portion of the stomach. The lesion is a large ulcer with the typical elevated edge more characteristic of cancer than ulcer. Figure 5 shows a longitudinal section through stomach and ulcer, and one can see that cancer has infiltrated to the peritoneal coat. One gland at this point was involved; other glands were not microscopically affected. Figure 6 is a photomicrograph of a section through the ulcer. The glandular arrangement is still preserved in the adenocarcinoma.

The patient was a white woman aged 43; for eleven months there had been continuous discomfort in the epigastrium, increased by eating solid food. The distress was so great that she consulted a physician within five months. On restricted diet she had been more comfortable. The patient had vomited three times—the first attack of vomiting was two months before admission. With her inability to eat without discomfort she had lost weight and strength. At the examination the most conspicuous finding was a mass; gastric lavage demonstrated residuum, but no blood. The residuum was rather slight. Hydrochloric acid was absent, total acidity 13. Apparently it was the palpable mass which urged operation.

At operation the mass occupied the lesser curvature. It was freely movable, and there were no adhesions.

This patient lived in comfort about seven years. She was readmitted to the Johns Hopkins Hospital in February, 1915, with a huge pelvic tumor of which there had been symptoms but a few months. This patient died within a few weeks in the hospital, and the necropsy demonstrated a primary adenocarcinoma of the body of the uterus with involvement of the ovaries, broad ligaments and glands. There was no evidence of carcinoma in the area of the stomach, and every evidence that the present disease had no relation to the cancer of the stomach removed seven years before.

CASE 3 (Pathologic No. 10763).—In this case the operation was performed at St. Agnes Hospital by Dr. Bloodgood, Aug. 11, 1910. There was a movable, nonadherent mass at the pylorus. After the simple resection the duodenum was sutured to the stomach after Kocher's method.

Figure 7 shows the external surface of the mass resected; the normal duodenum and stomach on each side of the tumor are clearly seen.

Figure 8 pictures a longitudinal section. The tumor begins at the pylorus; it is a somewhat fungous ulcer, and has not infiltrated through the peritoneum, as shown in Figure 9, a photomicrograph.

Fig. 9 (Case 3).—Fungous ulcer.

This patient was a white man aged 55; his symptoms began eleven months before operation; at first simple discomfort in the epigastrium after eating. In three months there were definite symptoms of stenosis, recognized by his physician, Dr. Wertz of Hagerstown, Md., but the patient refused operation until August. At that time he was greatly emaciated, anemic, and the stenosis was almost complete. Fortunately the Kocher anastomosis worked well, and the patient could be fed immediately after operation.

At this time, May, 1915, there is no evidence of recurrence.

Albucasis — 1000 A.D. —Albucasis insisted that for successful surgery a detailed knowledge of anatomy was, above all, necessary. He said that the reason why surgery had declined in his day was that physicians did not know their anatomy. The art of medicine, he added, further required much time. Unfortunately, to quote Hippocrates, there are many who are physicians in name only, and not in fact, especially in what regards surgery. He gives some examples of surgical mistakes made by his professional brethren that were particularly called to his attention. They are the perenially familiar instances of ignorance causing death because surgeons were tempted to operate too extensively. His description of the procedure necessary to stop an artery from bleeding is an interesting example of his method of teaching the practical technic of surgery. Apply the finger promptly on the opening of the vessel and press until the blood is arrested. Having heated a cautery of the appropriate size, take the finger away rapidly and touch the cautery at once to the end of the artery until the blood stops. If the spurting blood should cool the cautery, take another. There should be several ready for the purpose. Take care, he says, not to cauterize the nerves in the neighborhood, for this will add a new ailment to the patient's affection.—Walsh: Makers of Medicine.

CHRONIC DUODENAL ULCER*

WILLIAM J. MAYO, M.D.
ROCHESTER, MINN.

In the presidential address delivered before the American Surgical Association in 1900, Dr. Robert F. Weir[1] called attention to the surgical possibilities of ulcer in the duodenum. In his masterly presentation of the subject he dealt chiefly with the acute cases, especially those in which perforation had taken place. Within the following year the condition was recognized in examining patients in our clinic and several patients were operated on. The previous history in each case was so distinctive as to attract attention at once. Before the perforation occurred, the patients suffered from intermittent digestive disturbances followed by intervals, sometimes of great length, in which they were fairly well. The symptoms complained of were characteristic — hyperacidity, hypersecretion, hunger pain, food relief and, in the later stages, the phenomena which accompany obstruction.

These various findings were most interesting and led promptly to a more careful examination in similar cases in which we had been operating for so-called pyloric obstruction, supposedly due to ulcers of gastric origin. The investigation showed that a high percentage of the ulcers believed to be pyloric were in reality in the first portion of the duodenum.

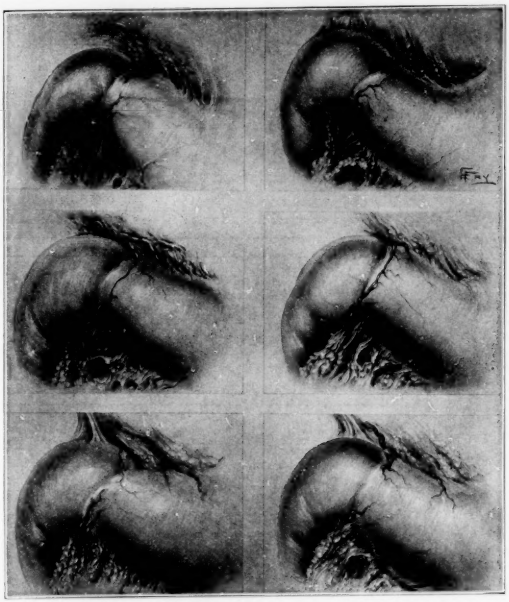


Fig. 1.—Types of pyloric vessels in relation to the location of the pylorus.

In 1904 I reported to the American Surgical Association fifty-eight cases of undoubted duodenal ulcer in which C. H. Mayo and I had operated.[2] Even at that time we had no conception of the frequency with which duodenal ulcer had occurred. This is shown by a comparison of the statistics of cases in which operation was done in our clinic as noted at subsequent dates: In 1904 the relation of gastric ulcer to ulcer of the duodenum was: gastric 73 per cent., duodenal 27 per cent.; in 1907, gastric 52 per cent., duodenal 48 per cent.; in 1910, gastric 35 per cent., duodenal 65 per cent.; in 1914, gastric 27 per cent., duodenal 73 per cent.

Our work during this early period was greatly stimulated by the splendid contributions of Robson and Moynihan, whose observations and results agreed with those in our clinic. The fact that surgeons working simultaneously in different countries should come to the same conclusion seemed very significant.

The idea that duodenal ulcer was more frequent than gastric ulcer was slowly evolved. Surgeons investigating conditions at the operating table were more readily convinced than physicians working along the lines of specialized gastro-enterology. A prominent specialist in gastro-intestinal diseases once asked, "How is it possible that you, a general surgeon, see so many of these cases while I who am devoting all my time to this work see so few?" I could only answer, "The thickness of the abdominal wall prevents you from seeing them."

Postmortem statistics have been and are still quoted in opposition to the view that duodenal ulcer is a frequent condition. For example, the statistics of Rokitansky,[3] master pathologist, were published in 1839. Brinton,[4] whose statistics are so readily quoted on every occasion, published his work in 1857. These did not represent Brinton's personal observations, but what he had gleaned from postmortem records obtained from diverse sources previous to that time and did not necessarily represent facts but their interpretation in the light of the time when the statistics were compiled. The statistical method of settling such questions is none too good at best and when the statistics are from fifty to seventy-five years old they can hardly be accepted as representing modern thought on the subject of gastric and duodenal ulcers.

The methods of clinical study have been even more chaotic. For example, compare the clinical diagnoses of gastric ulcer on admission to the hospital with the necropsy findings ten years ago. Take three hospitals in Philadelphia: University Hospital, clinical diagnosis of gastric ulcer 0.48 per cent.; Pennsylvania Hospital,

*Read before the Association of American Physicians, May 11, 1915, Washington, D. C.

1. Weir: Address of the President; Perforating Ulcer of the Duodenum, Tr. Am. Surg. Assn., 1900, xviii, 1-37.

2. Mayo: Duodenal Ulcer, a Clinical Review of Fifty-Eight Operated Cases with Some Remarks on Gastrojejunostomy, Ann. Surg., 1904, xl, 900.

3. Rokitansky: Oesterreich Med. Jahrb., 1839, xviii, quoted by Welch, W. H., Simple Ulcer of the Stomach. In Pepper's System of Medicine, Philadelphia, 1886, ii, 481.

4. Brinton: On the Pathology, Symptoms and Treatment of Ulcer of the Stomach, 1857, London, Churchill.

clinical diagnosis 0.13 per cent.; Blockley Hospital, as the result of necropsy findings giving 1.42 per cent. of gastric ulcer (Francine[5]). In other words, in two hospitals of exactly the same character in the same city ulcer was diagnosed clinically nearly four times as often as in the other, while both fall short of the actual postmortem findings in the third hospital from three to eleven times. Duodenal ulcer was seldom mentioned as a clinical or necropsy finding. Francine says: "We cannot base accurate or conservative conclusions on data obtained from clinical observation."

Without going further into the question of the relative frequency of gastric and duodenal ulcers, it may easily be seen that the clinical and postmortem demonstration of peptic ulcers has been, to say the least, misleading. The Germans, who were slow to investigate duodenal ulcer, were the greatest comfort to those who did not believe that duodenal ulcer occurred with any degree of frequency. A celebrated German surgeon said in explanation: "We relied too much on the supposed knowledge of the gastro-intestinal specialist; he was so positive that we really thought he knew."

The change in opinion in Germany within the last two years has been very remarkable and is best demonstrated by Kümmel's[6] statistics of the Eppendorf Hospital. Quoting from his recent paper: "It is not uninteresting for me to explain to you how in the relatively short time, especially within the last few years, the number of duodenal ulcers has increased among us and how a notable gain in the *actual objective material* in our *pathologic institutes has been brought to light by Fraenkel.*"

Of equal significance is the work of Schrijver[7] of Amsterdam who shows the same striking increase in the recognition of duodenal ulcer. Those experiences can be multiplied from all the advanced European clinics. The clinical frequency of duodenal ulcer has been demonstrated by exact methods under the sense of sight in the operating room.

Wilkie,[8] of the Royal Infirmary of Edinburgh, has found forty-one (9.9 per cent.) duodenal ulcers in 490 postmortems. In only six cases had antemortem diagnoses been made; in these operations had been done. Wilkie quotes Gruber that 75 per cent. of duodenal ulcers found after death had not been diagnosed during life.

The experimental production of gastric and duodenal ulcers as yet appears to have little bearing on chronic callous ulcer. There is a type of acute ulcer probably toxic in origin which gives rise to sudden severe symptoms often followed by perforation or hemorrhage. These patients left untreated either die or completely recover within a few weeks. The ulcers are multiple; there is no callus and several ulcers may perforate simultaneously. So far as I have been able to observe, experimental ulcers belong to this class and are of very little value in determining the character and position of the chronic callous ulcer of the duodenum. The latter are usually single, seldom begin with an acute attack, and as a rule the earlier symptoms are less severe than the later ones.

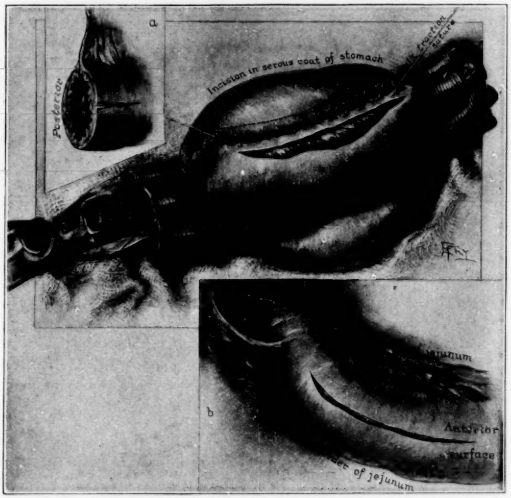


Fig. 2.—Interrupted seromuscular sutures, posterior row, in place. Peritoneal and muscular coats of jejunum incised to mucosa. Dotted line on stomach indicates line of incision. *a*, line of incision in jejunum, not opposite mesentery but on the upper left side. *b*, line of incision in jejunum.

It is interesting to speculate as to what diagnoses were made in the cases of duodenal ulcers prior to our present knowledge. It is altogether probable that a large percentage of chronic duodenal ulcers were not diagnosed at all. Some of them were believed to be gastric ulcers.

A high percentage of acute perforations were believed to be acute appendicitis since the fluids quickly gravitate into the right iliac fossa, and the appendix as well as the surface of the intestine early shows marked evidences of peritonitis. Ten years ago it was taught that an appendix apparently normal in its mucosa, under certain conditions, permitted bacteria to pass into the peritoneal cavity, causing septic peritonitis. The mistake was often not discovered even at operation and the death of the patient came after extensive peritoneal involvement had obscured the site of perforation in the duodenum sufficiently to prevent recognition. The experience of the Massachusetts General Hospital as reported by Codman[9] is instructive in this respect.

RELATIVE NUMBERS OF GASTRIC AND DUODENAL ULCERS (KUMMEL)

From 1897 to end of	1911,	191 gastric ulcers to 16 duodenal.
	1912,	10 gastric ulcers to 7 duodenal.
	1913,	11 gastric ulcers to 30 duodenal.
First three months	1914,	no gastric ulcers to 12 duodenal.

5. Francine: The Incidence of Gastric and Duodenal Ulcer in Philadelphia, Am. Jour. Med. Sc., 1905, xxix, 429.
6. Kümmell: Zur Chirurgie des Ulcus Duodeni, Beitr. z. klin. Chir., 1914, xcii, 290.
7. Schrijver: Das Ulcus Duodeni, Berlin, Karger, 1914.
8. Wilkie: Observations on the Pathology and Etiology of Duodenal Ulcer, Edinburgh Med. Jour., 1914, xiii, 196.
9. Codman: On the Importance of Distinguishing Simple Round Ulcers of the Duodenum from those Ulcers which Involve the Pylorus or are above it, Pub. Mass. Gen. Hospital Med. and Surg., Papers, 1910, iii, 3582; Diagnosis of Ulcer of the Duodenum, ibid., p. 83.

I shall not go into the question of the etiology of duodenal ulcer. It is quite evident that the same causes which produce gastric ulcer produce duodenal ulcer. The thrombosis and embolism theory, the nerve theory, the bacterial theory, the mechanical theory, and the erosion theory all have their advocates. The latest recruit to the infection theory is Rosenow,[10] whose splendid investigation as to the relation of the streptococci in the terminal capillaries of the mucosa to ulcer of the stomach and duodenum is most illuminating. This theory is borne out by the edematous inflammatory character of the ulcerous duodenum found when operating during an exacerbation of the symptoms and further by the fact that following acute perforation of an ulcer, if the patient is so fortunate as to recover, the ulcer heals as though some harmful agent had been extruded. If later other symptoms are manifested they are due to the obstruction or deformity which follows in the wake of ulcer.

One possible source of injury to the mucosa of the lesser curvature of the stomach and duodenum which may have some bearing on the etiology of peptic ulcer and also to cancer of the stomach is hot drinks. Solid food is masticated in the mouth and then passes into the fundus of the stomach where it is retained during the early period of gastric digestion. If the food is very hot, it is more or less cooled in the act of mastication, but drinks are taken into the stomach much hotter than can be borne in the mouth. Anyone taking the trouble to experiment will probably find they have been in the habit of swallowing fluids much too hot to be held in the mouth comfortably. The stomach and duodenum give little immediate indication that the fluid is too hot. These hot fluids are carried rapidly along the lesser curvature into the duodenum to the exact situation in which the majority of ulcers are found, possibly removing the protective mucus which prevents autodigestion and which may result in chronic irritation. Extremely cold drinks may have the same effect.

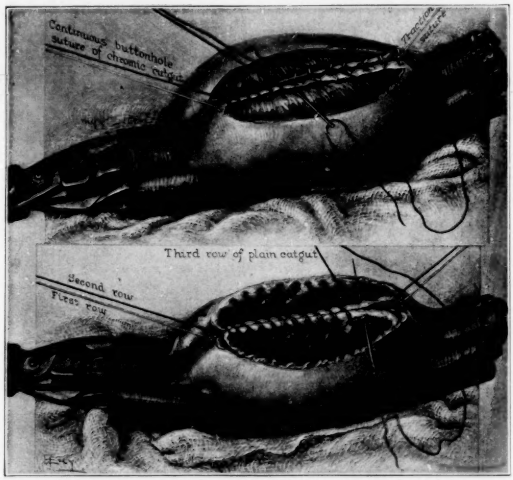


Fig. 3.—Upper figure shows through and through catgut suture of posterior wall before opening the mucosa. Dotted line shows where mucosa is divided. Lower figure shows mucosa flaps stitched across with catgut suture.

The experiments of Jefferson[11] as to the canalis gastricus have shown that liquids, when taken in considerable quantity, pass rapidly along the lesser curvature and into the duodenum without mixing with the food mass in the fundus.

The pyloric veins are most valuable in differentiating gastric from duodenal ulcer. A short, stumpy vein comes out from above and another from below the pylorus, sometimes sending a small branch across the top of the pylorus (Fig. 1). These veins are quite unlike the vessels of other situations of the stomach and when their peculiarities have once caught the eye they serve readily to locate the pyloric ring. Gastric ulcer in the pyloric end of the stomach is not often mistaken for duodenal ulcer but for cancer, as in this situation a tumor usually forms in connection with the ulcer as the result of muscular hypertrophy and edema.

The large majority of ulcers of the duodenum are located in the first 1½ inches, more often on the anterior wall. A number begin just below the pylorus and at first glance they appear to involve the pyloric ring, especially when extensive and obstructive but careful examination will show that they are duodenal. The deeper, larger ulcers and those which bleed excessively are more often situated on the posterior wall, the callus sometimes extending into the head of the pancreas. Such ulcers may be concealed from view underneath the pyloric ring, but seldom involve the gastric mucosa. When an ulcer is situated on the posterior wall, a superficial contact ulcer will usually be found opposite on the anterior wall. The mucosa of the duodenum is thin, smooth and granular, and chronic duodenal ulcers may not therefore have the characteristics we have learned to expect from experience with gastric ulcers. I have excised a number of duodenal ulcers in which there was considerable scar tissue in the submucosa and muscularis and marked evidence of localized peritonitis; yet the actual ulcer was a mere slit or dimple surrounded by an eroded, discolored, "moth-eaten" patch of mucosa. This is the type of ulcer which occurs on the anterior wall unless there is a corn-like thickening over the top of the ulcer, in which case it will have the size, depth and callus characteristic of gastric ulcer.

Ulcers may exist in the duodenum at any point above the opening of the common duct or even down as low as the opening. I have observed three cases marked by repeated hemorrhage in which the ulcer involved the papillae of the common duct on its superior surface.

A high percentage of duodenal ulcers perforate the mucosa and muscularis to the peritoneal coat. These are classified as chronic perforations; complete per-

10. Rosenow, E. C.: Production of Ulcer of the Stomach by Injection of Streptococci, THE JOURNAL A. M. A., Nov. 29, 1913, p. 1947.
11. Jefferson: Jour. Anat. and Physiol., 1915, xlix, 165.

foration having been prevented by thickening of the peritoneum or adhesions to the gallbladder, omenta, suspensory ligament of the liver, etc. Many times an acute perforation actually takes place with the recovery of the patient, since the opening may be small, allowing but little fluid to escape and that fairly sterile. In such cases patients have a localized peritonitis with extreme pain lasting for several days and then make a spontaneous recovery. I have explored a number of such cases during an attack of acute localized peritonitis and have discovered the duodenal opening which had been spontaneously closed by adhesions. Occasionally absorption of the escaping products is incomplete and a phlegmon, usually underneath the liver, forms which can be opened and drained. If this is done gently the original source of leakage in the duodenum will probably not be reopened.

The symptomatology of duodenal ulcer is so well known that in the typical cases failure of diagnosis should not occur. The hunger pain and food relief, hyperacidity and hypersecretion and, in the later stage, obstructive phenomena, leave little doubt as to the character of the lesion. Failure in differential diagnosis may be due to accompanying diseases of the gallbladder, appendix, etc., which occur in about 16 per cent. In our experience, actual hemorrhage takes place in somewhat less than 25 per cent. of the cases, but if one is satisfied to ask the patient questions and accept doubtful evidence as to black stools, etc., this percentage can be increased to as much as 70 per cent. We have not found occult blood a reliable symptom and do not attach a great deal of importance to it. I say this with some reluctance, since many diagnosticians for whom I have the highest respect believe that it is a diagnostic sign of very great importance.

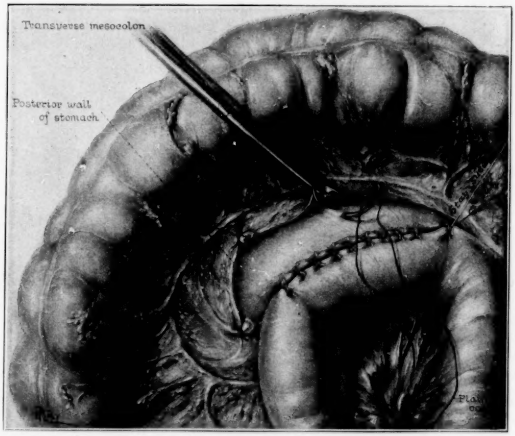


Fig. 4.—Stay suture distal to the anastomosis and suture of margin of the opening in mesocolon to stomach. Note that stomach hangs below transverse mesocolon making a funnel.

The Roentgen ray is a very important and increasingly valuable means of diagnosis. By this means, when taken in conjunction with the clinical history, a diagnosis can be made in approximately 95 per cent. of cases.

The physical examination, including the use of the stomach tube, is important as evidencing hypersecretion and food retention, tumor, visible peristalsis, etc. Laboratory diagnosis, that is, microscopic and chemical examination of gastric contents, has some value but is largely of a corroborative nature and has been very greatly overestimated. Dividing into four groups the means of diagnosis, the history is of first importance, the Roentgen ray second, the physical examinations (stomach-tube findings, etc.) third and the purely laboratory findings a poor fourth.

One of the most curious phenomena connected with duodenal ulcer is its intermittency. The disease usually begins in young males (eighty-three males to seventeen females); after a period of some weeks of symptoms there is a cessation more or less complete and the patient goes for months without any knowledge of his ailment. Then the symptoms recur and after a time the usual remission takes place. This may go on for years until finally obstruction supervenes and the symptoms become more or less constant, although the gastric muscles may by hypertrophy become competent to overcome considerable obstruction, in this respect acting quite like the heart in valvular disease — periods of competency followed by periods of incompentency.

A study of the history of the natural course of chronic duodenal ulcer makes the prospects of permanent cure by medical means open to question. I have seen a number of so-called "medical cures" and have not been able to determine that there was any material difference between them and the spontaneous remissions. The ulcer, as far as Roentgen-ray evidence is concerned, shows no physical change in the period of improvement. In operating during this period, no sign of healing is found. By means of alkalies, restricted diet, frequent feeding, largely milk and cream, whereby chemical corrosions are controlled, patients with chronic duodenal ulcers are relieved; a remission of the symptoms being secured and maintained for an indefinite length of time. But such patients cannot be looked on as cured unless they can go back, without a recurrence of trouble, to the regular diet of the grade and character obtainable by the average man. As a matter of fact, relapse usually takes place under such circumstances and the dangers of perforation and hemorrhage are ever present.

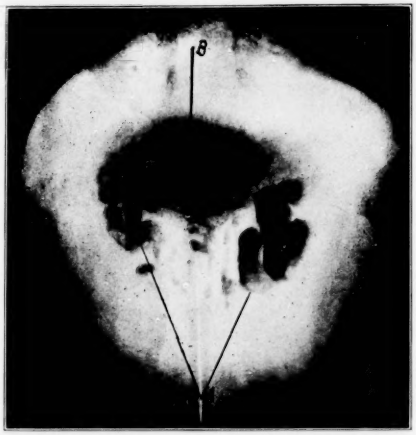
Other things being equal, after failure of reasonable medical treatment, patients with unhealed chronic duodenal ulcer should be considered surgically. To evade operation in the unhealed case is, I believe, a risk not commensurate with the value received from operative interference. No class of patients gives better results following surgical intervention.

A recurrence of symptoms after operation is most often due to defective surgical technic, usually a gastrojejunal-stitch ulcer occurs caused by the use of continuous silk or linen threads. Such sutures may hang, causing ulceration and trouble for months

or years. The stitch ulcer produces the same symptoms as the original ulcer: hunger-pain, food-relief, hypersecretion, and hyperacidity. I have reason to believe that many of the poor results following gastro-enterostomy are the sequelae of sutures which have finally passed out.

The clinical course of stitch ulcers is quite typical. The patient is operated on for chronic duodenal ulcer and gastro-enterostomy is done. He is relieved and for from three to six months feels fairly well; he then begins to develop the former symptoms and it is supposed that the original ulcer has recurred. In the course of some weeks or months, about the time the suture finally separates, gradual improvement takes place.

Recently a large number of articles have appeared dealing with the necessity of closure of the pylorus to prevent food from passing down into the ulcerated area. The evidence as to the necessity of this procedure is not clear. Stitch ulcers and improperly selected patients are responsible for the recurrence of the symptoms in most instances. We have not found that the patients in whom the pylorus was blocked have in any way had results superior to those in whom it was not blocked following simple gastro-enterostomy. If perforation is impending I think it wise to block the pylorus and cover the ulcer; if there have been hemorrhages this should be done and the vessels in the vicinity of the ulcer carefully tied. But there is no evidence that the routine blockage of the pylorus is advisable or necessary, and if it cannot be done without additional risk, I think perhaps it had better be left undone.



Roentgenogram made an hour after filling with collargol solution, and fifteen minutes after bladder had been irrigated and then filled with air. *A*, seminal vesicles; *B*, pool of collargol solution in the bladder, expressed from the vesicles by peristalsis.

The enthusiastic operator who has made gastro-enterostomies because of symptoms or for supposititious ulcers which he believed he could see or feel has greatly harmed gastric and duodenal surgery. In our clinic more than 100 unnecessary gastro-enterostomies have been cut off because of secondary complications such as chronic bile regurgitation, etc. Fourteen of these were our own patients operated on in the early period when it was not understood that a patient should not be operated on unless the ulcer could be actually demonstrated. At the time of these secondary operations careful search did not reveal evidence that ulcer of the stomach or duodenum had ever existed. Now that blockage of the pylorus has become popular, an alibi is established in advance inasmuch as the scar made by the ultimate passage of the suture into the gastro-intestinal lumen creates a reasonable doubt as to whether the scar is due to healed ulcer or to the thread. In other words, pyloric blockage often establishes false testimony.

In the large majority of cases gastro-enterostomy is the ideal operation for duodenal ulcer with or without infolding the ulcer (Figs. 2, 3, 4). In selected cases, excision of the ulcer in conjunction with the gastroduodenostomy of Finney is the operation of choice. In those rare cases in which true jejunal ulcer forms following gastro-enterostomy, the jejunal ulcer should be excised, the stomach and jejunal openings closed and the Finney operation done after cutting off the gastro-enterostomy. Following surgical intervention, the patient should be under good medical advice until permanent cure is assured.

VESICULAR ALBUMINURIA

WILLIAM T. BELFIELD, M.D.
Professor of Genito-Urinary Surgery, Rush Medical College
CHICAGO

For days after the seminal vesicles are filled with collargol solution through an incision into the vas (vasostomy), this black substance appears in the urine, for the peristaltic contractions of the vesicles press their contents into the prostatic urethra and thence into the bladder. If the patient pass the first half-ounce of urine into a small glass, the bulk of the urine into a large glass and the last ounce or thereabouts, into a third, it will be seen that the first half-ounce has the largest percentage of collargol (deepest color), the second the least, and that the third is usually intermediate in blackness. It is obvious that not merely collargol, but also the natural contents of the vesicles in health and disease, must at times be discharged by peristalsis into the prostatic urethra, thence to flow into the bladder and be voided with the urine. The vesicular contents normally include nucleoproteins, albumoses and globulins, all of which are precipitated by nitric acid, though only the globulins are coagulated by heat. While the percentage of these in the urine is commonly minute, yet it becomes at times sufficient to give distinct precipitates by the usual tests. Diseased vesicles furnish globulin, albumin, pus and blood, all of which may be diffused through the urine in the bladder.

How shall we distinguish vesicular from renal albuminuria? Not by the presence or absence of spermatozoa, as was formerly supposed, because the vesicular contents are albuminous even when the sperms are imprisoned in the testicles by bilateral epididymitis or vasectomy. Catheters in both ureters furnish urine free from vesicular contamination, but ureter catheterism is not generally practiced. The three-glass method, already described, furnishes a simple means of differentiation: Albuminous substances furnished

to the urine by the vesicles are unevenly distributed, the precipitates by heat and nitric acid being distinct in the first half-ounce and the last ounce of urine, less distinct or even absent in the intermediate ounces, while albumin of renal origin is evenly diffused throughout.

In a recent case of intermittent albuminuria, it was found that the first half-ounce and last ounce of urine usually contained albumin and microscopic blood, while the intermediate portion was commonly free from both. The emitted semen contained macroscopic blood. Catheters introduced into the ureters yielded urine free from blood and albumin. During several months his prostate and vesicles were frequently massaged by Dr. Wishard in Indianapolis and by myself, without appreciable effect. In June, 1914, I irrigated his right vesicle with peroxid through a vasostomy, and filled it with collargol solution; during the ensuing eleven months his semen has been free from blood and his urine from albumin.

Peristalsis of the vesicles, hitherto unrecognized, reveals a possibly frequent source of transient albuminuria without renal disease.

32 North State Street.

THE EXCRETION OF MERCURY BY THE GASTRIC MUCOUS MEMBRANE *

C. C. LIEB, M.D.
AND
G. M. GOODWIN, M.D.
NEW YORK

It has been known for a long time that mercury may be recovered from the stomach washings of patients who are under the systemic influence of this metal. The presence of mercury in the gastric contents does not depend on the method by which the drug is administered. So far as we have been able to determine, no attempt has been made to ascertain the mechanism whereby the mercury finds its way into the stomach contents. There are at least three obvious explanations. In the first place, the mercury excreted by the salivary glands may be swallowed with the saliva, or it may be that the mercury is excreted in the upper part of the duodenum and regurgitated into the stomach. In either case, the presence of the metal in the gastric contents may be regarded as a contamination. Finally, it is possible that the mercury is actually excreted by the gastric mucous membrane. Whichever explanation is correct, the presence of mercury in the gastric lumen is important, for when the drug is passed on into the small intestine, it is again absorbed.

This cycle of absorption, excretion and reabsorption may explain the persistent systemic action of mercury, and probably accounts for the prolonged stay of the metal in the organism. On the other hand, the cycle may be a real danger in patients who have taken large doses of mercuric chlorid either accidentally or with suicidal intent. In fact, Lambert and Patterson[1] have recently urged the importance of gastric lavage as part of the routine treatment of mercuric chlorid poisoning.

At the suggestion of Professor Lambert, we undertook to determine whether the mercury found in the stomach is swallowed with the saliva or whether it is excreted by the gastric glands. The importance of clearing up this point is evident, for if mercury is of salivary origin, lavage is not so essential a part of the treatment, since the entrance into the stomach may be prevented by directing the patient to eject his saliva. If the mercury, however, is actually excreted by the gastric mucous membrane, lavage is of the utmost importance.

Three series of experiments were carried out.

In Series 1 rabbits were used. The animals were kept in clean cages for twelve hours before they were anesthetized with ethyl carbamate. The esophagus was tied off above, and a small rubber catheter was passed into the stomach through a small incision in the gullet and tied into place. By this procedure, contamination of the stomach contents by mercury of salivary origin was impossible. The mercury, in the form of mercuric chlorid, was injected subcutaneously. The animals were then placed on an electric pad and surrounded by hot water bottles. At the end of a given period the rabbits were exsanguinated and the stomach was excised and opened. The contents were removed and the mucous membrane washed with Ringer's solution. The stomach contents and the washings were then subjected to Vogel's test for mercury.[2] The results are shown in Table 1.

TABLE 1.—RESULTS IN SERIES 1

Rabbit No.	Dose mg.	Hours Between Injection and Examination	Vogel's Test for Mercury
46	20	7	Positive
74	20	4½	Positive

In Series 2, cats were employed. Anesthesia was induced by chloroform and continued with ether. The animals were then decerebrated. The further preparation was identical with the method used for the rabbits. Mercuric chlorid was injected subcutaneously.

TABLE 2.—RESULTS IN SERIES 2

Cat No.	Dose mg.	Hours Between Injection and Examination	Vogel's Test for Mercury
40	20	8	Positive
58	20	5	Doubtful
34	20	4	Positive

In Series 3, decerebrated cats were again used, but the duodenum as well as the esophagus was tied off. The mercuric chlorid was injected slowly into the jugular vein.

TABLE 3.—RESULTS IN SERIES 3

Cat No.	Dose mg.	Hours Between Injection and Examination	Vogel's Test for Mercury
68	20	8	Positive
79	15	6	Positive
83	15	6	Positive
102	15	4	Positive
91	15	3	Doubtful
76	15	2	Negative
84	15	1½	Negative

In a number of cases the urine and stools were also examined for mercury. The metal was found in the urine within two hours after its administration and within four and one-half hours in stools.

From these experiments it seems probable that mercury is excreted by the gastric mucous membrane, and that gastric lavage is an essential part of the treatment of mercurial poisoning.

* From the Department of Pharmacology of the Columbia University, College of Physicians and Surgeons.

1. Lambert and Patterson: Arch. Int. Med., to be published.

2. Vogel, K. M., and Lee, O. I.: Detection of Mercury in the Excretions, THE JOURNAL A. M. A., Feb. 14, 1914, p. 532.

THE ISOLATION IN CRYSTALLINE FORM OF THE COMPOUND CONTAINING IODIN, WHICH OCCURS IN THE THYROID

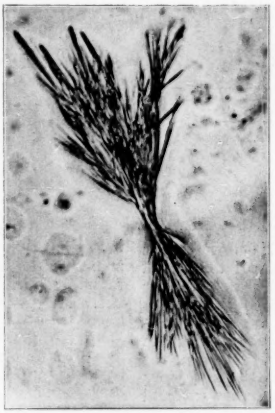
ITS CHEMICAL NATURE AND PHYSIOLOGIC ACTIVITY *

E. C. KENDALL, PH.D.
ROCHESTER, MINN.

During the past twenty years, investigation has firmly established, among other things, the following two facts: (1) The thyroid contains some substance capable of producing marked physiologic effects, and (2) iodin is a constant constituent of normal and pathologic glands. These two facts are emphasized because most of the controversies concerning the thyroid have arisen from attempts to explain the relation between the physiologic activity and the presence of iodin.

It is obvious that no final conclusions could be arrived at until either some substance possessing physiologic activity had been isolated in pure form and shown to be a normal constituent of the gland, or until the compound containing iodin had been isolated in pure form and its physiologic activity determined.

Last December I[1] reported the separation from the thyroid of a preparation containing 60 per cent. of iodin. The present paper is a summary of the results thus far obtained. In brief, the compound containing iodin, the presence of which, as a normal constituent of the thyroid, was foretold by Baumann[2] nineteen years ago, has been isolated in pure crystalline form, and further, it has been shown that this compound is the substance in the thyroid which is responsible for the physiologic activity of the gland.[3]



Crystals of the iodin-containing compound which occurs in the thyroid.

Previous investigation has shown that the compound containing iodin is firmly held as a constituent of the thyroid proteins. Hence separation of this compound must be preceded by a breaking down of the proteins into the simpler constituents of which they are composed. Baumann attempted this hydrolysis, using 10 per cent. sulphuric acid, but no satisfactory cleavage of the molecule resulted. The hydrolysis which has been successful was accomplished with sodium hydroxid in alcohol as a medium for carrying out the process.

A large number of compounds are obtained by this splitting up of the protein, but they are separated into two groups by the addition of acid. Those compounds insoluble in acid are designated Group A, and those soluble Group B.

The total iodin in the gland is found to be divided almost equally between the two groups. By further hydrolysis of the A group the compound containing iodin has been separated in pure crystalline form. Its exact formula cannot now be stated, but it appears to be di-iodo-di-hydroxy-indol. It crystallizes in microscopic needles that melt around 220 C. It is very insoluble in alcohol, ether, water, acids and sodium carbonate. Dilute hydrochloric acid dissolves 1 part in about 200,000. It is readily soluble in dilute alkali and ammonia.

No definite substance possessing physiologic activity has been isolated from the B group, but it is known to be a complex mixture containing amino-acids. The iodin in B is in organic combination, but the nucleus to which it is attached is unknown.

The thyroid having been separated into several different constituents, it seemed desirable to test each one for its possible physiologic activity. It was found that the typical effects of administration of desiccated thyroid — a rapid increase in pulse rate and vigor, increase in metabolism with loss of weight, and increase in nervous irritability — are all produced by the A constituents.

The next step showed that in A, containing about 5 per cent. of iodin, the effects produced are directly proportional to the amount of iodin present. And finally, in the purification of A and the separation of the iodin compound in crystalline form, the same typical effects were produced through all the various stages of purity, up to and including the crystalline compound containing 60 per cent. of iodin.

In testing B for physiologic activity, it was found that no apparent effects are produced when B is given experimentally to a normal animal or human being, but that a considerable degree of activity is manifest when B is given to patients suffering from cretinism, myxedema and certain conditions of the skin. However, no toxic effects have been produced by the administration of B, even in large amount.

This nontoxic effect of B is in strong contrast to the action of A. Although both A and B contain iodin, it has been shown that the toxicity of A is in direct proportion to its iodin content, but B iodin given in equal amount produces no apparent effect.

As previous investigators have pointed out, it is not iodin per se that is necessary. This work shows that it is the iodized indol that produces the physiologic activity. The actual amount of the crystalline iodin compound necessary to produce marked effect is exceedingly small. A total of 11 mg. (one-sixth grain), given in divided doses during a period of fourteen days to a cretin weighing 40 pounds, increased the pulse rate from 90 to 140. A total of 30 mg. (one-half grain), given in divided doses over a period of eighteen days to a woman weighing 112 pounds, increased the pulse rate from 75 to 130. Not only in rate but also in apparent vigor of the beat the cardiogram of a heart, after administration of the iodin com-

* From the Mayo Clinic.

1. Kendall, E. C.: A Method for the Decomposition of the Proteins of the Thyroid, with a Description of Certain Constituents, Jour. Biol. Chem., 1915, xx, 501.

2. Baumann, E.: Ueber das normale Vorkommen von Jod im Thierkörper, Ztschr. f. physiol. Chem., 1895-1896, xxi, 319.

3. The physiologic activity referred to is the production of the so-called hyperthyroid symptoms, tachycardia, increase in metabolism with loss of weight and increase in nervous irritability. Some other constituents of the gland possess physiologic activity, but of minor importance.

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pound, simulates a cardiogram of a patient with exophthalmic goiter.

What, then, is the relation of this iodin compound and the symptoms of exophthalmic goiter? Pathologic investigation has shown that the severity and duration of the symptoms are accompanied by definite histologic changes in the thyroid. It has been shown that in the severest forms of exophthalmic goiter the parenchyma is far more active than in the normal gland.

Analysis of 137 thyroids from exophthalmic goiter cases showed that, in those glands having a thin, watery secretion, the iodin content was very low, but as the secretion became thicker and less diffusible, the percentage of iodin increased.

These results point to two functions of the thyroid: One function is the manufacture of the iodin compound, and the other that of acting as a reservoir for this compound. We have no means at present of measuring the manufacturing capacity of the gland, but we do know that it is greatly increased in exophthalmic goiter. The reservoir capacity of the gland is obviously proportional to the iodin content. The total amount of iodin in the severest form of exophthalmic goiter averaged 7 mg., and the total iodin in glands in which the secretions had become thick and less diffusible was 35 mg. That is, the reservoir capacity had increased 500 per cent., and when it is known that 1 mg. a day of the pure crystalline iodin compound will produce marked toxic symptoms in a normal person, the important rôle played by the iodin compound in the production of symptoms of exophthalmic goiter is evident.

The separation in pure form of the iodin compound is the first necessary step in the further study, not only of pathologic conditions, but also of the normal physiology of the gland.

SUMMARY

1. By an alkaline alcoholic hydrolysis, the thyroid proteins are broken into many simpler constituents. These may be separated into two groups: the acid insoluble compounds are designated Group A; those acid soluble, Group B.

2. From Group A a pure crystalline compound, containing 60 per cent. of iodin, has been isolated. It appears to be di-iodo-di-hydroxy-indol.

3. Group B contains iodin in some unknown form of combination. It is a mixture containing amino-acid complexes and a low molecular weight.

4. Administration of A produces in the dog and in the human being a rapid increase in pulse rate and vigor, and increase in metabolism and nervous irritability. This physiologic activity is produced by the compound containing iodin in all stages of purity up to and including its crystalline form.

5. Given in excess, toxic symptoms are produced. The amount of the iodin compound required to produce toxic effects is exceedingly small.

6. In exophthalmic goiter two abnormal conditions exist. First, the secreting capacity of the gland is greatly increased and, second, the reservoir capacity of the gland is greatly decreased. The iodin compound plays an important rôle in the production of the symptoms of exophthalmic goiter.

7. The constituents of Group B produce no toxic symptoms, but in cases of cretinism, myxedema and certain skin conditions, they exert physiologic activity.

THE AIMS OF THE ASSOCIATION OF AMERICAN PHYSICIANS*

S. J. MELTZER, M.D., LL.D.
NEW YORK

It is not only customary, but it is by the order of the constitution, that the president opens the first session of the annual meeting by an address. I shall use the words of the first president of the association as a starting point for my remarks. President Delafield said:

> We want an Association in which there will be no medical politics and no medical ethics; an association in which no one will care who are the officers.

I shall deal first with the last-mentioned remark. We still do not care who the officers are. It is the prerogative and the duty of the incumbent of the office of the presidency to express his views on subjects which concern the welfare of the association. Now I wish to say that in my opinion the members of the association shall care more than they do, who are their officers, and especially who shall be their president. In the course of our existence the constitution was so amended as to invest the president with autocratic powers, while his election gradually became, by mere custom, entirely undemocratic. I presume that not many of you know the exact procedure. The five councilors fill each year the coming vacancy in their ranks. The oldest councilor becomes vice-president and then president. While the recommendations of the council are formally submitted to your vote, I am not aware that they were ever voted down. In my opinion this oligarchic form of government harbors a danger. It may readily happen that the *progressive* majority of the members will be continually governed by entrenched *regressive* elements. I do not mean to imply that we are actually confronted with such a situation; I merely wish to call your attention to the possibilities which such an anomalous situation may have in store for you. I do not wish to offer any remedial suggestions; these must come from the members.

Having served as an officer of the association for the last seven years, I am in a position to make the agreeable statement that medical politics and medical ethics still play practically no rôle in the procedure of election to membership in the association. It holds true, in general, that each year of the numerous candidates the best men are elected to fill the vacancies. But I wish to state warningly that we are not entirely free from danger. I am not afraid that we shall ever elect to membership one who was convicted for a criminal act. But avoidance of coming in collision with the criminal code or even a strict compliance with the ethical code of the American Medical Association are not unrefutable evidences of highmindedness. Commercial success in practice of medicine, social standing and social relations, manipulated publicity, the familiar principle of "one hand washes the other" and evils of a similar character are the pernicious elements which may endanger the high standard of our association. I speak not merely from theory. As president, I am entitled to express the wish that the association should comprise not only the most gifted,

* Remarks made at the opening of the thirtieth meeting of the Association of American Physicians by its president, May 11, 1915, Washington, D. C.

most learned and best-known physicians of the land, but should consist at the same time of high-minded, clean-handed men with a tinge of idealism, I appeal to you that in proposing candidates and electing them to membership, the moral standard of the candidate should be one of the primary objects of consideration.

The reference of the first president to politics and ethics and the historical remarks of another president reveal the cause, or rather one of the causes for the creation of this association. It was chiefly the unsatisfactory conditions which prevailed at that time in the American Medical Association that caused medical men of a higher type to form new national associations. A generation passed since the birth of this association. The change in the standard of American medicine which took place in this comparatively short span of time is marvelous indeed. Was our association an important factor in this progress? I believe that one of our presidents claimed it indeed. But justice compels me to state publicly that the credit for this achievement must be given chiefly to the great national democratic body, the American Medical Association. Since its reorganization, since the scientific part has been divorced from the politics of the Association, the character of the scientific proceedings changed completely. The purely medical work of nearly all the sections is now carried on generally by the scientifically productive, progressive medical element of the whole country which generally participates but little in the political activities of the organization. Furthermore, the new policies adopted by the recognized association undoubtedly exerted a most beneficial influence on the development of medicine in this country. I need only mention the work of the Council on Medical Education and of the Council on Pharmacy and Chemistry. The aims and the success of the last-named committee exerted even an international beneficent influence on medical therapeutics. Not the least of the merits of the regenerated American Medical Association is the high standard which THE JOURNAL is maintaining; it is undoubtedly now one of the best medical journals in the world. In this laudable work of the new American Medical Association, some of our members have taken an active part. But our association as a body cannot claim credit for the progress which was made in medical affairs of this country during the period of its existence; it was not brought about by any definite designs or policies of this association.

If the Association of American Physicians exerted an elevating influence on American medicine, it did so by its mere existence. When it was founded a generation ago, the effort was made to incorporate in it the best medical men which could be then found in the country. Since then, year by year, an effort was made to admit only those who were the best of the available material at each period. With the introduction of the institute of associate membership, a remedy was acquired to correct mistakes.

From the start our association formed a constituent part of the body known as the Triennial Congress of American Physicians and Surgeons. Like the other constituent societies, for instance, the surgical or the ophthalmologic, our association represents a certain special part of the medical practice; it represents *internal medicine*. This association, however, has one advantage over all of them. All practical medical subjects presuppose the knowledge of the pure medical sciences, for instance, physiology, pathology, bacteriology, pharmacology or hygiene. But the Association of American Physicians alone has the advantage of counting among its members invesigators of these various sciences. I say, it has the advantage; there are some among us who may not consider it an unmixed blessing.

Delafield, in the first presidential address, spoke of an association of physicians and pathologists. Osler, ten years later, added bacteriologists. We now have among our members also physiologists, pharmacologists and investigators in the fields of hygiene and preventive medicine. Permit me to define my own position as to the aim and the composition of the membership of this association. I entirely agree with the sentiment that the object of this association is, and should be, clinical medicine in both of its aspects, the scientific and the practical. Purely physiologic or chemical communications which have only a remote bearing on medicine do not belong before this forum. Neither should medical scientists whose work and interest lie at a great distance from clinical medicine be elected to membership of this association. But let me say this to you: For thirty-odd years I have been engaged in a more or less active way in the scientific as well as in the practical sides of medicine. It is my profound conviction that clinical medicine has a great future before it; but that the real success will come only from a close association of clinical medicine with the medical sciences.

The object of our association is to increase our knowledge of the intricacies of medicine, to learn from one another the new things we have unraveled and to instruct one another in the art of advancing our knowledge. That object will be best attained when the men studying the sciences of medicine and the men studying and handling diseases will come together and have a chance to be stimulated and instructed by one another. Of course both parties must be openminded, must be anxious to learn, and must have a deep interest in medicine and a full grasp of what it really means. Diseases are experiments which Nature makes on men and beasts. A mind trained in observing properly natural phenomena and studying critically experimental results is best prepared to interpret Nature's experiments, to grasp Nature's method in correcting physiologic aberration and to try courageously to improve on these methods and to discover or invent new ones. The best physician of the future will be the brainy man who spent many years in studying the methods employed in acquiring knowledge in the pure medical sciences and then in applying all his mental energies to a broad study of diseases. The field of the clinician is not confined to diagnosis and therapy alone, as was stated in one of the presidential addresses by a leading clinician. Great physicians were often also great original investigators. By diagnosis and therapy alone we would, for instance, have no knowledge of Bright's, of Graves' or of Addison's disease; we would not have known of myxedema or acromegaly. In fact, a good deal of our knowledge of the significance of the ductless glands and internal secretion was established by clinical observations, and at first even against violent opposition of some classical physiologists. An instance, illustrating the value of cooperation between clinical men and men in the medical sciences, is the discovery of the blood pressure raising principle of epinephrin by Oliver and Schäfer. It was the physician Oliver who first noticed, by insuffi-

cient methods, that the administration of extract of suprarenals seemed to increase the blood pressure. By obtaining the cooperation of the physiologist Schäfer, the subject was investigated by proper physiologic methods, and the discovery of epinephrin, which attained such great importance, was safely established.

I therefore say again that it is of great advantage to our association to have among its members investigators in the various fields of the medical sciences. Clinical medicine and medical sciences must be brought closely together and work in harmony; that will assure a steady progress of the science and practice of medicine. This union is what distinguishes our association from other societies and which gives it the right of continual existence.

Some older members complain that the papers presented at the meetings are getting above their heads. While this may be a fact, it cannot be made the basis of a complaint. The papers of the program of an annual meeting reflect in general the character of the medical studies which prevail at that period. The science of medicine is progressing. Do these members wish that our science should stop progressing as soon as they, for one reason or another, cannot follow it? The very same members who make this complaint were progressives at some time or another; otherwise they would not have become members of this association. Their work at their time was probably above the head of those who remained then behind them.

If the character of the papers on our program reflects the nature of the problems which occupied the minds of our members in the past year, the number of these papers show their intense scientific activity. A long program awaits you — and me. I shall have to be strict in enforcing the time limit to the speakers. I have the good will to be impartial and shall therefore cut short my own remarks.

PATHOLOGY OF WAR SURGERY*

BENJAMIN JABLONS, M.D.
Pathologist to the American Ambulance, Paris; Director of Laboratories, St. Francis Hospital
SAN FRANCISCO

It has been said that "Peace hath its problems no less than War." That war, however, may concentrate certain problems of peace, which are well under control in times of peace, this, and past wars have clearly demonstrated. The dangerous forces of nature, which an enlightened humanity has begun to control, come very much to the fore when humanity turns upon itself.

The object of civilized warfare has always been to render the opposing soldier a noncombatant with as little danger as possible. For this purpose we have Hague conventions, banning the use of dumdum bullets. Hague conventions take account, however, neither of the ever-present microbe nor of inclement weather, nor yet of the abuses of nature that the present methods of warfare make inevitable. It is these factors that we are fighting, and their further exposition may therefore not be out of place.

The elaborate machinery of a "Service de santé militaire" is intended to combat these dangers. An ambulance such as this is a necessary element in such a machinery, and a laboratory organization a not unimportant cog.

Our work in the department of pathology has necessarily limited itself to the problem of war surgery. The special character of the patients at the ambulance has necessitated examinations with reference to the kind of infection and the manner in which their wounds reacted to this. Our function has been, and is, to supply the microscopic eyes to the surgeons and the clinicians. It would be impossible in a short space to describe in detail each phase of the work carried out in the laboratory. I shall attempt to give only a general idea of the things we have tried to do.

The department, organized in November, has carried out to the present time, March 30, 1915, about 850 examinations, fifty necropsies and twenty biopsies. The greater part of these examinations has been chiefly that of the blood and the urine. Suspected abscesses, where generalization in the blood stream had not yet taken place, demanded an inquiry into the reacting powers of the blood. We have had 153 occasions to do this. Injuries in the neighborhood of the kidneys, possible postoperative affections of the kidneys, and infections of the kidneys in cases of spinal paralysis have required the examination of urinary specimens over 200 times.

The occurrence of tropical infections where so many of our wounded have either lived or been born, has had to be considered, this more especially where unexplained fever was present. In seven cases the malarial parasite was found to have caused the rise of temperature.

Owing to the care with which the cases have been admitted, we have fortunately been spared infectious fevers. It has been necessary twelve times only to make the differential diagnosis between typhoid fever and simulating surgical infections.

It is not uncommon for men who have healed lesions of tuberculosis, and then lead a trench life, to have these lesions develop anew. We have examined seventy-four sputums in which this possibility had to be considered.

In any community, infectious throat inflammation is an ever-present factor. Here, we have had sixty-eight examinations in which this element of diagnosis has arisen. In this, as in the other preceding cases, it is not bullets alone that slay, but bacilli that are continually adding to the dreadful toll.

It is a difficult thing for the surgeon to see the kind of bacterium with which he has to contend, with the exception of the pyocyaneous infection. The color of the pus does not sufficiently show the nature of the infecting microbe. Bacteriologic examination of the pus exuding from a wound becomes of importance for this reason. We have, in all, examined 118 wounds. Our results, as well as the results of a series of examinations conducted in the university laboratory in conjunction with the laboratory of the hospital, I shall cite below.

From the very outset we have been obliged to take into consideration the temporary nature of the hospital. To organize a complete laboratory of any permanent character meant a diversion of monies from a perhaps much more necessary aim. We have therefore contented ourselves only with the absolute essentials necessary to increase the usefulness of the laboratory to the attending surgeons. The organization of the laboratory consists at present of a series of rooms

* Read before the Medical Society of American Ambulance, Paris, March, 1915, and the St. Francis Hospital Clinical Society.

placed at our disposition by the kindness of the medical board and the ambulance committee. This has permitted the setting aside of: one room especially for bacteriologic investigation; one room for clinical and chemical analysis, and one room reserved exclusively for histologic examinations of tissues excised which were of a questionable nature.

The acute character of the cases in which operation was performed has made necessary only twenty-one examinations of the latter sort.

In the fifty necropsies which have been performed, the causes of death have either been secondary fatal hemorrhages from previous wounding of blood vessels reopened after a few days as a result of the sloughing of tissue, or infection of wounds of the brain, spinal cord, chest or abdomen. Under the latter heading may also be included the infections consequent to large compound fractures of either the upper or lower extremities. Tetanus was the cause of death in only two cases. Pneumonia was an occasional complicating cause after previous injury to the jaw in which swallowing had been interfered with by the swelling of the tissues of the floor of the mouth.

The vagaries of the wounding projectile were as strange as it is possible for the mind of man to conceive; and naturally so, when one considers the rain of bullets to which these men were exposed. In one case the bullet entered the left side of the abdomen at a point between the spleen and the left kidney, continued upward, and in its course injured the tail of the pancreas, traversed both walls of the stomach, and continued on through the diaphragm, finally to lodge in the muscular substance of the heart, close to the right auriculoventricular valve. This patient lived ten days after the injury. In another case the bullet had entered the left back of the chest, close to the spinal column, had ploughed its way through the lung, through the diaphragm, into the stomach and thence proceeded calmly on its way as any morsel of food. This man likewise lived a period of almost two weeks, ultimately to succumb to a suppurative pleurisy.

Cases of secondary hemorrhage have been likewise varied. Three patients — after a previous wound of either the jaw or the mouth — died of hemorrhage of the lingual artery; the vessels injured originally at the moment of the wound and controlled in the field, after several days began to bleed afresh with ultimate death from hemorrhage. These have been fortunately few. In one case of bullet wound of the jaw, the bullet passed through the back of the mastoid process, and at necropsy was found to have involved the vertebral artery. This explained the surgeon's inability to control the hemorrhage by ligating the internal and common carotid of that side. One of the rarest occurrences encountered at necropsy was a soldier with a compound fracture of the jaw, who died three days after the receipt of the injury, as a result of hemorrhage from the severed inferior dental artery. All of these conditions have been object lessons in the care and treatment of similar cases.

Injuries to the head and spinal column with a fatal outcome make up almost 30 per cent. of the fatal cases. Most of the injuries produced by the entrance of projectiles to the brain or spinal cord still resist our advanced methods of therapy. If not immediately infected, it seems a difficult thing to prevent later infection. A number of cases of gunshot wounds of the skull develop septic meningitis, caused either by the staphylococcus or the streptococcus, weeks after the wound is apparently healing satisfactorily. This is a field in which some advance is still to be looked for.

Tetanus, that dread disease of previous wars, has practically lost its terrors. The universal administration of antitetanic serum has conclusively proved its value. We have had only two deaths of this disease; one soldier had received an injection of serum immediately on his arrival at the hospital, but infection with the *Bacillus tetani* had unfortunately been too far advanced to be arrested at that time; the other patient had not received serum owing to the absence of any visible wound — the condition for which he had been admitted was that of frost bite of both lower extremities. He died of tetanus two days after admission. This demonstrates how important is the prophylactic administration of antitetanic serum in any condition in which the skin vitality may be diminished. It also demonstrates the good judgment of the surgeons in charge in insisting on the use of serum in every case admitted to this hospital — a rule which, except in the instance mentioned, has never been deviated from.

We have had seven fatal cases of gaseous gangrene infection. These have all been acute cases admitted with symptoms of fully developed gas gangrene infection, which have succumbed in a few days despite all possible efforts. I shall go more fully into this condition later.

As was to be expected, a fairly large percentage of the fatal cases was due to infection of wounds. In some of these, infection of the bone marrow was the primary cause; in others, extension of the infection into the blood vessels of the neighboring region gave rise to a purulent thrombophlebitis with spread of infection throughout the body. In a few instances, the cause of death was chronic sepsis attendant on a suppurative infection of one or more points of the body.

Of abdominal injuries which have resulted fatally, we have had only two instances. The distance of this ambulance from the front is perhaps the best explanation for its rare occurrence here.

The greatest number of fatal cases has been unpreventable. Most deaths were caused either by conditions not amenable to surgical treatment, or by the advanced state of the infection at the time of entrance. Very few were due to conditions that had not been recognized sufficiently early. Despite the greatly increased number of admissions, including cases much more severe than even in the early days of the hospital, the four deaths we have had to record since February 1 to the present date (March 30, 1915) sufficiently attest to the increased vigilance of the attending surgeons. May I be permitted to touch on the mortality of this hospital? We have had occasion in the past to realize what a frightful mortality attends surgical wounds inflicted in war time. In the total admissions, numbering well over 1,400, there have been eighty-one deaths, 6 per cent., a mortality rate which hospitals, even in peace times, might point to with a great deal of pride. How much more reason have we to be proud of so low a mortality rate with such severe, complicated injuries? We have attempted to do our little share toward helping to decrease this mortality rate by increasing the possibilities for more accurate diagnosis and adding to the indications for surgical intervention.

In research we have been able only to scratch the surface. The paucity of help and equipment is our only excuse. As previously stated, in conjunction with Dr. Huffman of the university laboratory, I have carried out bacteriologic investigations in a series of sixty-two consecutive cases. It was possible to demonstrate that of the sixty-two cases, seventeen were found harboring the *Bacillus perfringens* — in one case pure, in all other cases associated with the staphylococcus, with the streptococcus, with the *Bacillus coli*, with the pyocyaneus, and two up to the present unidentified anaerobic bacilli. The common pus producers, well known to surgeons in times of peace, have not kept their unwelcome presence from us. Staphylococcus and streptococcus have been frequent visitors. The staphylococcus has been found thirteen times; the streptococcus only six times. Clinically, old wounds showed almost a pure staphylococcus infection. When badly infected and discharging for a long period of time, the perfringens and the pyocyaneus bacilli were commonly found present. In the 118 cases in which we had occasion to carry out bacteriologic investigation in the hospital laboratory, the *Bacillus perfringens* was seen thirty-three times. On seven occasions this was the only microbe evident. These were all cases of gas gangrene, for the most part fatal.

The frequent occurrence of the *Bacillus perfringens* and other anaerobic bacilli has prompted us to carry out attempts at vaccination with the Weimberg mixed vaccine. I may safely say that it has never done harm; in cases in which the perfringens seemed to be the predominant organism, it has seemed to be of decided value. In a series of ten cases treated on the Lakeside service, wounds infected with the perfringens bacilli healed rapidly. In one case, in which an infection of a stump was present in which this bacillus was found associated with other bacteria, the use of the vaccine brought subjective as well as objective improvement. The wounded patient insisted that the treatment had helped to diminish his pain. Objectively, the discharge had very evidently diminished in quantity. In a series of eight cases treated on Dr. Blake's service, in which the *Bacillus perfringens* likewise had been found, one patient in whom the vaccine treatment had been instituted rather late died. In the others, the rapid subsidence of temperature and the comparative rapidity with which the wound healed seemed an indication of its efficiency. It is needless to say that the number of cases treated is far insufficient to be able to draw definite conclusions. They *are* sufficient in number to indicate the path that might be followed with possibly excellent results.

Of vaccine and serum therapy in general we have not been given sufficient cases to draw any very definite conclusions. Antistreptococcus serum has been used in five instances. Two cases of streptococcus septicemia did not respond, although large doses of the serum were administered intravenously. One soldier whose wound discharge revealed, on examination, the presence of anaerobic streptococci, was healed in a remarkably short space of time after the use of the serum, a rapid subsidence of the temperature and a marked subjective increase of comfort following injection. In two other cases the use of the serum locally in wounds seems to have been of help. The press of work has not enabled us to follow up consistently this form of treatment.

The use of autogenous vaccines has been limited. Several cases of staphylococcus septicemia did not respond. Two local infections have been followed by amelioration of the symptoms.

May I be permitted to make a plea here for a more extended use of this method of therapy? When, if not at such a time, can we draw definite conclusions as to its value?

The most interesting form of wound infection encountered here has naturally been that of the gaseous gangrene — not a newly discovered disease, as supposed in some quarters, but a fairly old disease, which, owing to the concentration of individuals and the methods of warfare, has sprung suddenly into prominence. Infection of wounds by anaerobic bacilli had been seen in previous wars. The question as to the anaerobic nature of the infection was naturally left undetermined. Bacteriologic laboratories then, as today, were not considered a sine qua non. Small wonder that it had been left to us to combat this disease with its etiology and therapy practically unknown.

The first essential naturally was to determine definitely the actual nature of the disease. The first definite case in which the bacillus was isolated from the blood, sufficiently early after death to make its causal rôle absolute, occurred at this ambulance. A culture of the heart's blood, taken three hours after death, proved to be infected exclusively with the *Bacillus perfringens*. Since that time the number of cases has multiplied in which the *Bacillus perfringens* has been found to be the causal factor. There are other bacteria, however, that will produce gas in gangrenous tissues. The *Bacillus proteus*, the *Bacillus coli* at such a time do not remain innocent invaders. In eight undeniable clinical cases of gaseous gangrene, we have in seven instances found the perfringens; in one other instance the *Bacillus putrificus* was associated with the streptococcus. In two of these instances the use of the Weimberg vaccine, given at a late date, did not prevent the patient's death. We have not been able to infect guinea-pigs with this bacillus alone. Only by the previous injury of tissue have we been able to produce what may be clinically called gaseous gangrene. At the Pasteur Institute, injury of the muscle seems to have been all that was sufficient.

Pathologically, the lesions have been almost uniform. A punctured wound of the skin, associated in every case with injury to a large blood vessel, and in most cases with a fracture of the bone — this seems to have been a sine qua non. Following this, at intervals of from one to four days, infection with superficial gangrene, extensive destruction and necrosis of the tissues immediately adjacent to the wound, marked cloudy swelling of the muscles above and below the wound, extensive edematous infiltration interspersed with gas bubbles varying in size, are always present, and, externally, a characteristic discoloration of the skin, with a characteristic, pungent fetid odor, once smelled, never forgotten. Vesicles, varying in size from that of a pea to almost as large as the flat of the hand, are present, filled with a sanious fluid. Occasionally this fluid was found straw-colored. These blebs were examined bacteriologically; in a few instances they showed the presence of the characteristic bacillus; in other instances no bacillary infection could be found, with perhaps the exception of the banal skin bacteria. The examination of the serous infiltrating fluid showed invariably, except in the case previously mentioned,

the bacillus of Welch. In some cases the characteristic changes in the tissues remained localized to the affected limb; the opposite limb, or even the opposite part of the body, showed none of these. Occasionally the local changes seemed to have been arrested at Poupart's ligament, even though the blood was later found full of bacteria. In all cases, except where the *Bacillus putrificus* was found, the heart was found to be filled with bubbles of gas, and likewise other larger vessels of the body, as well as the vessels of the brain. The hemorrhage underneath the skin layer found so often in biopsies as well as at necropsy, could be explained after a histologic examination of the tissues. The toxin of the bacillus seems to exert a special selective action on the muscular layers of the blood vessel walls, so that an escape of the blood becomes almost natural.

Despite the small number of cases examined, I feel safe in venturing to say that the production of gas plays a not unimportant rôle in the causation of death in this disease. The acute attacks of pain complained of by the patient previous to death, the rapidity with which the fatal symptoms set in, can only be likened to caisson disease, in which air emboli are the chief pathologic factor.

In cases of abscess with gas, when the septicemic features of the disease have not developed, it is the toxin production, I am sure, that is responsible for the wearing down of the patient's vitality. Histologically the changes can best be summed up as hemorrhage, edema and gas production. The parenchymatous changes in the muscle fibers which are the predominant features histologically are an early and well-marked pathologic change constantly present. This undoubtedly contributes in a large measure to the pouring forth of blood cells and the general infiltration of the tissues with serum.

In limbs fixed immediately after amputation we have found this change, namely, the splitting and coagulation necrosis of the muscle fibers of the media, which seem to point to a special selective action of the virus of the disease on the muscle coats of the blood vessel walls.

Two cases that we have had occasion to study bacteriologically here have responded, one to amputation, and the other to an intravenous injection of the serum prepared by the injection of cultures of the *Bacillus perfringens*. This also points the way to further investigation.

The etiology of this infection may perhaps be explained by the positive presence of anaerobic bacilli in the outer clothing of soldiers. We have not carried out this phase of investigation very extensively, but on several occasions we have examined the clothing of soldiers who have been brought directly from the battlefield and have found these bacilli present.

That the presence of this bacillus is not alone the factor that permits of the production of gaseous gangrene infection is proved by the comparative frequency with which it is found in ordinary wounds. The contributing cause is always, I think, an associated lesion of a blood vessel that will produce sufficient gangrenous tissue for this bacillus to thrive in ease, and by the production of protamin toxins, break down the resistance of the surrounding tissues and enable it to continue its vicious cycle unmolested. We have found this associated injury in every case examined at necropsy. The absence of leukocytes in the immediate vicinity of the infecting area, their scavenger activities when no dead tissue is present to permit of the growth of the *Bacillus perfringens*, seem to me a fairly good indication of the soundness of this hypothesis. All these are facts which only an extended investigation can either completely verify or disprove. I trust it will fall to the lot of the laboratory units that will come here in the future to settle these points definitely. As I have said before, we have merely ruffled the surface. It remains for them to dive deep into the sea of nature and bring forth the pearls of truth.

INFANT MORTALITY DUE TO LABOR*

C. S. BACON, M.D.
CHICAGO

The conservation of infant life, the prevention of infant mortality, is a subject that has been given much attention in recent years, not only in this country but also throughout the world. A strong national society has been organized to stimulate general interest in the subject, and to secure lay and professional cooperation in controlling the causes of the high mortality.

One of the important phases of this subject is an obstetric problem. Infant mortality during labor and due chiefly to labor is very high. The accidents of labor which destroy the fetus causing stillbirth, or those which injure it so that the infant dies shortly after birth are many. A study of these accidents involves a review of many obstetric problems. In such a review, we approach the most important questions of dystocia in a way that should lead to valuable suggestions for practice.

STATISTICS OF INTRAPARTUM MORTALITY

A statistical study is interesting and valuable, but unfortunately we have little data in the United States. In the mortality statistics of the United States Census Bureau, we have mortality statistics for the registration area, which embraces 65 per cent. of the population of the United States. For the rest of the country we have only the population statistics. Even in the registration area we have no record of births. Nevertheless, it may be of some value to make estimates, using the rates of birth and mortality from other countries in order to secure a more detailed picture of the subject. Even if the approximate figures be far from exact, they will lead us into no serious error. The causes of stillbirths are the same here as in Europe, and our study will show the relative importance of the different etiologic factors in intrapartum mortality. No claim is made for the scientific accuracy of the results; they are only helpful and suggestive in the study of the obstetric problem.

Let us assume the present population of the United States as about 100,000,000, that of Chicago as about one fortieth as much and that of Illinois as two and one-half times as great as that of Chicago or one sixteenth that of the United States. Then let us assume that Chicago and Illinois have about an average birth rate and mortality rate. This is true of the mortality rate of Chicago and probably reasonable for the birth rate. Of course we know very little about the mortality rate of the rest of the state, for, unfor-

* Presented before the Chicago Gynecological Society, May 21, 1915.

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tunately, Illinois has no vital statistics law that is recognized by the Census Bureau, and therefore it is not included in the registration area.

Let us assume that the average birth rate for the United States and for Illinois is about 24 per thousand. This would give about 2,400,000 births annually in the United States, 150,000 in Illinois, and 60,000 in Chicago.

Brothers found the number of stillbirths in New York City to be about 8 per cent. of the births. This rate is probably too high, because the figures of the number of births on which it is based are too small. In various European clinics the rate is between 4 and 7 per cent. In the German empire it is between 3 and 5 per cent. There are nearly 3,000 stillbirths reported in Chicago, or, according to our estimate about 5 per cent. of the births. The number of reported stillbirths is probably everywhere somewhat below the actual number occurring. We shall probably not be far from the truth if we say that there are 120,000 stillbirths annually in the United States, 7,500 in Illinois and 3,000 in Chicago.

In considering the question of intrapartum mortality, it is necessary to determine what proportion of fetal deaths occur before the onset of labor and how many occur during labor. This fact could be determined easily if the condition of the stillbirths was reported, for, as is well known, the fetus becomes macerated when it remains in the uterus long after death. Reports from a number of clinics show that in nearly half of the stillbirths the fetuses are macerated. It is also important to observe that the proportion of macerated fetuses is much greater among the premature than among the children at or near term. These premature, nonviable and macerated fetuses represent the stillbirths due to antepartum disease of the mother or fetus, such as syphilis, nephritis, infection, etc. A study of this group is important, but not within the scope of this paper, which is concerned only with intrapartum mortality. Accepting the fact that, without great error, from two fifths to one half of the fetal deaths occur before labor, we may take from one half to three fifths of the figures given before for the number of nonmacerated or recently dead stillbirths, that is, for the fetal mortality during labor. We then have from 60,000 to 70,000 for the United States, about 4,000 for Illinois and 1,600 for Chicago.

In studying the effect of labor on infant mortality, we must consider not only the number of stillbirths, but also the number of deaths that result from accidents of labor when death occurs within a few days of birth. The census report gives over 5,000 deaths from "injuries of labor" in the registration area. This would correspond to about 8,000 from the whole United States. There are also about 29,000 deaths during the first week of life from congenital debility and prematurity in the registration area, or 45,000 in the United States. Over half of these infants are under 1 day old. It is of course impossible to say for how many of these deaths the labor is responsible, that is, how many could have been prevented by a better management of labor. The premature child is more easily injured even in a spontaneous and apparently normal labor. Strong uterine contractions with a deficiency of liquor amnii may produce hemorrhage in the brain or lungs. Likewise, lack of care immediately after birth will cause refrigeration to 94 F. or lower, which becomes the important factor in the early death of the child. It is certainly conservative to estimate that from 5,000 to 6,000 of these 45,000 deaths could be prevented by a better conduct of labor.

Moreover, there are in the registration area nearly 1,000 deaths during the first seven days from convulsions, and a like number from bronchitis, bronchopneumonia and pneumonia. This will correspond to about 1,600 deaths in the United States in each of these classes. Certainly a large number of these are due to injuries and accidents of labor, and probably nearly half are preventable. If we say that 7,000 of the 56,000 deaths in the first seven days of life not due to injuries of labor are due to labor, we are undoubtedly within the limit of conservative statements. Adding to these the 8,000 ascribed to injuries of labor, we have 15,000 children dying from labor within a week, and half of them the first day.

We then have the following figures denoting the number of deaths due to labor: For the United States, 65,000 stillbirths and 15,000 deaths subsequent to birth, or 80,000. Likewise in Illinois, 5,000, and in Chicago, 2,000. This would give a fetal mortality due to labor of 3⅓ per cent.

In the recent presidential address of J. Whitridge Williams before the American Association for the Study and Prevention of Infant Mortality, the author makes a study of 705 fetal deaths in 10,000 cases of labor. In this series were included all deaths during labor as well as those occurring during the first two weeks after birth. Selecting out the cases probably due to labor to compare with our own, I find 285, or a fetal mortality of 2.85 per cent. The causes of fetal death were as given in Table 1.

TABLE 1.—CAUSES OF FETAL DEATH

Cause	No.
Dystocia	124
Placenta praevia	22
Ablatio placentae	13
Toxemia	46
Prematurity (one eighth of the cases)	6
Unknown (not macerated)	74
Total	285

CAUSES OF INTRAPARTUM MORTALITY

We may now consider the influence of malpresentation of the fetus, other forms of dystocia and obstetric operations in determining the intrapartum mortality. Cross-presentations are almost always fatal unless corrected by operation. If the frequency is about 0.5 per cent., the number of cross-births in the United States is about 12,000 annually. An average death rate of 40 per cent. gives us a mortality of 4,800. Similar computations give us 300 deaths from cross-births in Illinois and 120 in Chicago.

Prolapse of the cord is responsible for about the same number of deaths. This accident occurs in many of the cross-births as well as in breech presentations, and is responsible for many of the deaths charged to these malpresentations.

Face and brow presentations taken together are slightly less frequent than cross-presentations, but the mortality should not average much above 12 per cent. This would give about 1,500 deaths yearly in the United States, from 90 to 100 in Illinois and 40 in Chicago.

Breech or pelvic presentations occur in about 3 per cent. of all labors. This rate would give 72,000

breech labors yearly in the United States. The total mortality is from 20 to 25 per cent., corresponding to from 15,000 to 18,000 deaths due to this condition. Likewise we find in Illinois 4,500 cases with a mortality of about 1,000, and in Chicago 1,800 cases with a mortality of 400. In these cases, prolapse of the cord also plays a rôle.

Taken together, we have about 24,000 deaths from the three varieties of malpresentation. As the total number of births in malpresentations is about 4 per cent. of the total number of births or about 100,000 annually, we have the infant mortality about 24 per cent. This leaves about 56,000 infant deaths in skull presentations, or about 2.4 per cent. In other words, the infant mortality due to labor is ten times as great in these malpresentations as in skull presentations.

Passing now to the skull presentations, I shall consider the forceps operations. It is very difficult to estimate the frequency. In some sections, forceps are applied by physicians in from 40 to 50 per cent. of all cases. In other districts the frequency of forceps does not exceed that of well-managed clinics, that is, from 2 to 4 per cent. Probably if we consider the whole country as well as the state, we shall be conservative if we estimate the frequency to be between 6 and 7 per cent. of all labors. That would give us 160,000 forceps operations in the United States yearly, 10,000 in Illinois and 4,000 in Chicago. The mortality from forceps differs greatly according to the kind of operation. Low forceps are not very dangerous, while high forceps have a fetal mortality of from 50 to 90 per cent. Probably an estimate of 15 per cent. fetal mortality for all operations is conservative. This would give us about 24,000 deaths annually in the United States, 1,500 in Illinois and 600 in Chicago.

To these sources of infant mortality we may add eclampsia, or puerperal albuminuria and convulsions, as it is called in the International List, which is the cause of about 4,000 fetal deaths each year, rupture of the uterus, placenta praevia and ablatio placentae, everyone of which caused from 1,600 to 2,000 fetal deaths annually. Also a number of other rare accidents of labor or kinds of dystocia add to the infant mortality. Many of the deaths due to these causes have been already included under some other heading. This group adds about 12,000 deaths to those already enumerated in the preceding paragraphs.

Summing up, we find Table 2 expressing the approximate infant mortality from the causes already given.

TABLE 2.—CAUSES OF INTRAPARTUM INFANT MORTALITY

Causes	In United States	In Illinois	In Chicago
Malpresentations	24,000	1,500	600
Forceps operations	24,000	1,500	600
Miscellaneous causes	12,000	750	300
Total	60,000	3,750	1,500

Recalling the estimate of 80,000 deaths due to the accidents of birth, we find 20,000, or 25 per cent., unaccounted for. It is interesting to compare this with Williams' findings. He gives 127 deaths due to unknown causes. Fifty-three of this number are macerated stillbirths, however, leaving seventy-four unknown, or 26 per cent. of the 285 deaths probably due to labor. This result probably corresponds pretty well with the experience of most obstetricians. For about every fourth child that dies during or shortly after the labor, the death cannot be attributed to any of the accidents of labor or forms of dystocia, already enumerated. For reasons about to be given, I shall ascribe these deaths to the kind of dystocia not yet considered, namely, abnormal uterine contractions.

Completing our table and reducing it to percentages, we have the data given in Table 3.

TABLE 3.—CAUSES OF INTRAPARTUM INFANT MORTALITY

	Per cent.
Malpresentation	30
Forceps operations	30
Miscellaneous causes, including placenta praevia, ablatio placentae, ruptured uterus, toxemia, etc.	15
Pathologic uterine contractions	25

PATHOLOGIC UTERINE CONTRACTIONS

I wish to call special attention to the last cause and try to justify ascribing so much importance to it. The danger of abnormal uterine contractions is not, as a rule, sufficiently recognized. Before labor begins, the oxygenation of the fetal blood occurs in the placenta. A continuous and abundant circulation of the maternal blood furnishes the oxygen and removes the waste from the fetal blood. When the uterine contractions begin, the maternal circulation is disturbed. So long as the contractions last only a short time and are separated by considerable intervals of relaxation, there is no appreciable disturbance to the fetus. Our main index of the fetal condition is its circulation or heart tones. The frequency of the heart tones changes but little or not at all during the early contractions of labor.

When the contractions last longer and occur more frequently, there is more disturbance in the placental circulation and more derangement in the fetal circulation. If the contractions last more than one and one-half minutes, and if the intervals between contractions are shorter than the contractions themselves, the condition is pathologic and dangerous. If the contractions become more frequent and prolonged so that there is hardly any interval, we have the condition called tetany uteri, which almost always results in fetal death.

Such excessive contractions may occur early in labor, but they generally come on later. They are often the reaction of the uterus to obstacles to delivery, and so occur in contracted pelves, bad presentations, etc. They are excited by operative interference. They are the cause of fetal death not only in the 25 per cent. of causes given in the table, but also in some of the other categories. In all malpositions, fetal death is frequently due to excessive contractions, excited by the delay to labor. It may be true that in 50 per cent. of all intrapartum fetal deaths, the immediate cause of death is excessive uterine contractions.

If it should be objected that 20,000, or 25 per cent., of all fetal deaths is too large a number to be ascribed to this cause, it must be remembered that the mortality rate is nevertheless small. From 2,400,000 labors each year we deduct 100,000 malpositions and 200,000 forceps cases and cases of toxemia, placenta praevia, etc., leaving 2,100,000, in which 20,000 deaths make less than 1 per cent. A certain number of these cases are undoubtedly contracted pelves, and the injuries produced by the pressure required to mold the head to make its translation possible are factors that combine with the excessive uterine contractions to injure the child. It is, indeed, difficult always to apportion the blame. Even when postmortem examinations are made, the findings are not decisive. A

careful study of the clinical history is, however, often conclusive. The contractions are normal for hours, and the child in good condition. Then comes a period of perhaps only an hour or two of very severe pains, long and hard, with short intervals, after which the fetal heart tones are wanting.

It is very important, therefore, to watch the uterine contractions with great care in long and hard labors, and especially toward the end of labor, when excessive contractions are more apt to occur. The diagnosis of the contractions is easily made by watching the patient and noting the hardening of the uterus by laying the hand on the abdomen. The diagnosis of the condition of the fetus is made by counting the fetal heart tones. Whenever there is danger, the heart tones should be counted every ten to twenty minutes.

The management of excessive contractions to prevent fetal death is to control the contractions. The best means is the hypodermic injection of morphin, and anesthesia. One-fourth grain of morphin is generally sufficient in the first stage of labor. If necessary, this dose could be repeated, for at this time there is not very much danger of morphin affecting the child. In the second stage, ether may well be combined with morphin, or substituted for it. Should the obstacle to delivery that excites the excessive uterine contractions be at the obstetric outlet, that is, should the head be on the perineum and held back by a tense, unyielding vulvar ring, episiotomy should be done. If the head is not at the vulva but down in the pelvis, and the cervix is well dilated, and if, in spite of morphin and anesthesia, the danger to the child is great, forceps may be applied. As a rule, however, forceps will increase the danger of fetal asphyxiation and should not be used unless an easy and quick extraction is possible.

MORTALITY FROM THE USE OF FORCEPS

The prevention of intrapartum death in case of bad presentation involves the correct management of these forms of dystocia, and cannot be entered on in detail in this paper. In regard to the deaths due to forceps operations, it must be said that forceps are employed much too frequently—often on account of the entreaties of the patient and her friends, often to hasten the labor for the convenience of the physician. Whenever forceps are used for these reasons, and the child is lost, its death is rightly charged against the operation, which is not far removed from the category of malpractice.

There is a great difference in the danger of high forceps and low forceps. The former has been used far too much in contracted pelves. We have learned that other operations are safer both to mother and to child. Cesarean section or hebosteotomy is in proper cases to be chosen, while the induction of premature labor must be considered in cases seen early enough in pregnancy. Above all, these cases should be studied long and with care. Exact diagnosis, not only of presentation and position, but also of station, should be made. One who rushes into a high forceps operation thinking he has to do with a head in the pelvis, and then is astounded to find that he must exert all his strength to extract a child that is dead or dying, should learn that obstetrics has advanced in recent years, and that the high forceps is an operation that is very nearly discredited.

2156 Sedgwick Street.

THE LATER HISTORY OF THE TYPHOID CARRIER H. O.

WILBUR A. SAWYER, M.D.
Director of the Hygienic Laboratory of the California State Board of Health
BERKELEY, CALIF.

In two previous articles, the history[1] of a typhoid carrier, H. O., and his treatment by typhoid vaccine[2] have been reported. The more recent developments in his case show that he was not cured by the vaccination or by the extirpation of the gallbladder, and that after an interval of many months, during which typhoid bacilli could not be found in the feces, he infected other persons.

Through the courtesy of Surgeon R. M. Woodward, medical officer in command of the United States Marine Hospital in San Francisco, I have had the privilege of drawing on the records of the hospital for the greater part of the material here presented.

REVIEW OF THE EARLIER REPORTS

The sailor, H. O., was sick with typhoid fever in the United States Marine Hospital in San Francisco from Nov. 15, 1907, to Jan. 15, 1908. During a period of four years, from March 6, 1908, to March 19, 1912, he worked on several steamships, but most of the time on the *Acme*. During this period he infected twenty-seven officers and sailors with typhoid fever. Four of them died. An investigation by the San Francisco Department of Health into the cases on the *Acme* brought H. O. under suspicion as a carrier and the source of the infection. He was studied in the City and County Hospital for a period of two weeks in December, 1911, but typhoid bacilli were not found by the city bacteriologist in a series of examinations of his feces, undoubtedly owing to intermittence in the discharge of the bacilli in detectable numbers.

The State Board of Health later gathered circumstantial evidence which pointed to H. O. as a carrier responsible for the cases, and a specimen of feces obtained March 3, 1912, was found to contain many typhoid bacilli.[1] H. O. did not handle or serve food on shipboard, and it is probable that the infection was transmitted to his comrades in various ways, but chiefly through the water in a cask from which the men dipped drinking water.

March 19, 1912, Surgeon James M. Gassaway offered to admit H. O. to the United States Marine Hospital. Since that time, except for a short period of parole, H. O. has remained voluntarily at the hospital, although technically under quarantine by the California State Board of Health. Every effort has been made by the staff of the hospital to free him from the carrier state.

The article by Currie and McKeon[2] takes up the history at this point. Between March 28 and Oct. 14, 1912, specimens of feces were examined weekly and biweekly at the laboratory of the United States Public Health Service in San Francisco. The typhoid bacillus was isolated twelve times, but not later than June 19. Examination of the urine consistently give negative results.

In an attempt to cure H. O., an autogenous typhoid vaccine was administered between April 27 and June

1. Sawyer, Wilbur A.: A Typhoid Carrier on Shipboard, THE JOURNAL A. M. A., May 4, 1912, p. 1336.
2. Currie, Donald H., and McKeon, F. H.: History of a Typhoid Carrier, THE JOURNAL A. M. A., Jan. 18, 1913, p. 183.

28, 1912, in ten doses increasing from 25 million to 1,500 million bacilli. As typhoid bacilli could not be found in the stools from June 19 to October 14, a period of nearly four months, it was suspected that the treatment had resulted in a cure, but Currie and McKeon held their final conclusion in reserve pending more prolonged observation.

PERSONS INFECTED DURING THE PATIENT'S PAROLE

When the long series of examinations of the feces of H. O., made at the laboratory of the United States Public Health Service, and also two examinations made Aug. 9 and 27, 1912, in the State Hygienic Laboratory, had failed to reveal typhoid bacilli, it was agreed by Surgeon Woodward, the California State Board of Health, and the Health Department of San Francisco that it would be safe to release him temporarily from quarantine. He was discharged from the hospital, Oct. 14, 1912. He signed an agreement to report to the Marine Hospital for examination once a month for six months. It was understood that this provisional release from quarantine would be made permanent at the end of that time if his condition remained satisfactory. He reported according to the agreement, and examination of his feces continued to give negative findings. He was employed from Oct. 20, 1912, to about Jan. 10, 1913, as winch driver on the steamer *Noyo* of the coastwise lumber trade.

Nov. 15, 1912, a seaman, O. H., from the *Noyo* was admitted to the United States Marine Hospital in San Francisco for typhoid fever. He recovered and left the hospital Jan. 14, 1913.

Another seaman from the *Noyo*, F. C., was admitted to the same hospital for typhoid fever, Dec. 23, 1912. He had a severe and typical attack. The Widal test was positive. He died, December 28.

Jan. 9, 1913, a sailor, L. K., ill with typhoid fever, entered the United States Marine Hospital in Los Angeles. He had been on the *Noyo* from Dec. 16 to 24, 1912, and in all probability had been infected between those dates. The diagnosis was confirmed by a positive Widal test. This patient recovered.

It seemed highly probable that these three sailors had received their infection from H. O. while working with him on the *Noyo*, a ship previously free from typhoid fever. The captain and crew of the *Noyo*, knowing about the experience on the *Acme*, suspected that this was the case. As a result H. O. was discharged about Jan. 10, 1913, and the seamen's union asked the Marine Hospital to make an investigation.

The investigation was made by Passed Assistant Surgeons D. H. Currie and H. G. Ebert of the United States Public Health Service. It showed that the conditions on the *Noyo* were favorable for the transference of typhoid fever from a carrier among the crew to the other sailors. The men secured their drinking water from a dilapidated water tank having a common drinking cup tied to it. In using the cup the hand was partially immersed, and pollution of the water in the tank was inevitable. Moreover, this tank was situated near the water-closet, which was in an unclean condition at the time of the inspection. The investigators suspected that H. O. was the source of the infection and recommended that he be again placed in quarantine at the Marine Hospital, and that the nature of the water containers used on coastwise vessels entering the port of San Francisco be called to the attention of the State Board of Health. The investigators expressed the opinion that a tight container for drinking water with a faucet would greatly lessen the chances of infection if a carrier were aboard, and that the arrangement exemplified on the *Noyo* was a constant menace to sailors. The conditions for transfer of infection on the *Noyo* were very similar to those found earlier on the *Acme*.[1] The open water-cask of the latter vessel had furnished an obvious opportunity for the transfer of infection.

The series of typhoid cases on the *Noyo* stopped when H. O. was discharged, just as the long series on the *Acme* had abruptly terminated when he left that ship.

Jan. 17, 1913, H. O. was readmitted to the United States Marine Hospital in San Francisco, and was again placed under quarantine by the State Board of Health. During the three months of his parole he had infected three persons, one of whom had died.

REMOVAL OF GALLBLADDER

Examination of the feces of H. O., Dec. 27, 1912, and Jan. 23 and Feb. 6, 1913, failed to reveal the typhoid bacillus, but it was present in a specimen obtained January 28. This positive specimen proved that the patient was still a typhoid carrier, a conclusion already reached on account of the infections on the *Noyo*.

At that time the existing literature gave considerable assurance that chronic carriers discharging typhoid bacilli in their feces usually owed their condition to a diseased gallbladder, and that its extirpation would result in a cure. After mature consideration Surgeon Woodward recommended removal of the gallbladder, and H. O., anxious to be freed from the danger of harming others, consented to be operated on. Feb. 12, 1913, Surgeon Woodward operated on H. O. and removed the gallbladder and its duct. H. O. rapidly regained his usual good health.

The gallbladder, contrary to expectations, contained no gallstones and was normal. A painstaking bacteriologic examination at the laboratory of the United States Public Health Service in San Francisco showed that the contents of the gallbladder did not contain typhoid bacilli, although colon bacilli and a few other organisms were present. In this carrier the gallbladder was not the focus at which the intermittent infection of the intestinal contents originated. It may, nevertheless, have been a place favorable to the multiplication of typhoid bacilli received in the bile from a focus in the liver, if such a focus existed.

After the operation, frequent examinations of the feces of H. O. were made. Nine examinations from March 4 to April 1 were negative. April 8, 1913, a specimen was obtained from which the typhoid bacillus was isolated. The removal of the gallbladder, like the treatment with typhoid vaccine, had failed to cure the carrier state. In necropsies it has been shown a number of times that the gallbladder of a typhoid carrier may be free from typhoid bacilli. Bindseil,[3] Messerschmidt[4] and Goebel[5] have reviewed the literature and have presented cases of their own. In five out of

3. Bindseil: Bakteriologischer Sektionsbefund bei einem chronischen Typhusbazillenträger, Ztschr. f. Hyg. u. Infectionskrankh., 1913, lxxiv, 369.

4. Messerschmidt, T.: Bakteriologischer und histologischer Sektionsbefund bei einer chronischen Typhusbazillenträgerin, Ztschr. f. Hyg. u. Infectionskrankh., 1913, lxxv, 411.

5. Goebel: Bericht über das Sektionsergebniss bei zwei chronischen Typhusbazillenträgern, Ztschr. f. Hyg. u. Infectionskrankh., 1914, lxxviii, 555.

twenty-two thorough necropsies on chronic typhoid carriers, the typhoid bacillus was not present in the gallbladder. In the series of twenty-two cases, the typhoid bacillus was not infrequently found in the gallbladder and in the bile ducts of the liver, usually in the contents, and sometimes in the walls. In rare instances it was found in the spleen, and in single instances in the bone marrow, lung, and (in the presence of tuberculous lesions) in the suprarenal and kidney.

LATER EXAMINATIONS

From April 10, 1913, to April 7, 1915, a period of two years, the feces of H. O. were examined seventy-one times and typhoid bacilli were found in only three specimens, obtained Nov. 28 and Dec. 5, 1913, and Feb. 11, 1914. During the last fourteen months of this period, forty-two examinations were made and all gave negative results. In the examinations a suspension of the feces in broth or sterile water was streaked over the surface of Endo or Drigalski medium, or both. After proper incubation the typhoid-like colonies were studied further by cultural and serologic methods.

ISOLATION OF THE TYPHOID BACILLUS FROM THE STOMACH CONTENTS

When the examinations of feces had given negative results for over a year, Assistant Surgeon N. E. Wayson, medical officer in charge of the laboratory of the United States Public Health Service in San Francisco, used a method suggested by Carnot and Weill-Hallé.[6] On two occasions he obtained bile for examination by feeding H. O. 150 c.c. of olive oil on an empty stomach and removing the stomach contents one hour later through a stomach tube. After allowing the stomach contents to stand, he removed and examined the lower layer, containing the bile. In the first specimen, obtained Jan. 26, 1915, typhoid bacilli were not found, but an organism was isolated which resembled the paratyphoid A bacillus. From a second specimen, obtained in the same way, March 16, 1915, the typhoid bacillus was isolated. An examination of the feces eight days earlier had been negative. The finding of typhoid bacilli in stomach contents containing bile showed that H. O. was still a carrier, March 16, 1915, and suggests that the bacilli may have come with the bile from the liver.

ISOLATION OF THE TYPHOID BACILLUS FROM FECES OBTAINED BY PURGATION

April 12, 1915, H. O. was given podophyllum in the evening. The following morning magnesium sulphate was administered. During the next twenty-four hours three stools were obtained. The first was firm, like most of the stools from H. O., and the second was soft. Typhoid bacilli could not be found in these two specimens. The third stool was semi-fluid, and Dr. Wayson found that it contained typhoid bacilli in large numbers. During the preceding fourteen months, typhoid bacilli had not been found in the feces of H. O.

When H. O. was being investigated by the State Hygienic Laboratory in March, 1912, a semifluid stool containing very many typhoid bacilli was obtained after the administration of fluidextract of cascara and magnesium sulphate.[1] It was suspected that active peristalsis increased the number of typhoid bacilli in the feces by stimulating the flow of infected bile (or other material), or possibly by enabling more of the typhoid bacilli to survive some unfavorable condition in the intestinal contents.

VIRULENCE OF THE TYPHOID BACILLUS FROM H. O.

That the typhoid bacilli from H. O. were highly virulent had been repeatedly shown by severe and fatal cases among the sailors who came in contact with him. Additional evidence was obtained through an accident in the State Hygienic Laboratory.[7] June 15, 1914, an assistant engaged in making an anti-typhoid vaccine attempted to transfer with a pipet a suspension of live typhoid bacilli of the strain originally obtained from the feces of H. O., March 3, 1912. A small amount of the suspension was drawn against the tip of the tongue and the teeth. The mouth was at once washed out repeatedly with 50 per cent. alcohol. Nine days later the symptoms of typhoid fever began with headache. The course of the disease was mild and brief. The temperature did not go above 39.6 C. (103.2 F.) and returned to normal on the ninth day of the illness. The Widal test was negative at the onset, but strongly positive later. This accident showed not only that the typhoid culture isolated from H. O. was virulent, but also that a culture which had been grown on nutrient agar for two and a quarter years and transferred at least monthly was still capable of producing typhoid fever in human beings.

SUMMARY AND CONCLUSIONS

1. Although frequent examinations of the feces of the typhoid carrier H. O. gave negative results for four months after he had been treated with autogenous typhoid vaccine, he infected three persons when subsequently released from quarantine on parole. The total number of persons infected by this carrier is thirty, including five who died.

2. In a further attempt to cure this carrier, the gallbladder and its duct were removed surgically, but the typhoid bacillus was found in the feces several times after the operation. Examination of the gallbladder showed that it was normal and that its contents were free from typhoid bacilli.

3. After forty-one successive examinations of feces during a period of fourteen months, all with negative results, the typhoid bacillus was isolated from stomach contents containing bile.

4. Certain typhoid carriers are unusually dangerous and must be controlled by quarantine or other adequate supervision.

6. Carnot and Weill-Hallé: Method for Determining the Presence of the Bacillus Typhosus, abstr., Paris Letter, THE JOURNAL A. M. A., Jan. 16, 1915, p. 260.

7. Sawyer, W. A.: A Typhoid Infection Contracted in the Laboratory, Month. Bull. California State Board of Health, 1914, x, 80.

Health Leaflets.—The Bureau of Public Health Education of New York City, in cooperation with neighborhood societies, publishes and distributes monthly neighborhood chronicles in the form of a four-page health leaflet, containing on the first page local news of the particular district of the city from which the leaflet will be distributed. They will be issued from about ten different sections of the city. The remainder of the matter in the leaflet will be the same in each. The remainder of the matter in the leaflet will be the same in each. This is expected to be an effective means of reaching the public in regard to health matters which affect them most closely. The leaflets will be distributed from house to house by the neighborhood associations.

RECOVERY IN TWO CASES OF STREPTOCOCCUS MENINGITIS FOLLOWING LUMBAR LAMINECTOMY AND DRAINAGE

WILLIAM E. LEIGHTON, A.B., M.D.
Fellow of the American College of Surgeons; Assistant Professor of Surgery, St. Louis University School of Medicine; Visiting Surgeon, St. Louis City Hospital; Associate Surgeon, Barnard Free Skin and Cancer Hospital
AND
J. A. PRINGLE, M.D.
Chief Resident Physician and Resident Alienist, St. Louis City Hospital
ST. LOUIS

The mortality of streptococcus meningitis is so very high that any method of treatment which offers even a slight possibility of a cure of this condition is deserving of our consideration. While the treatment which we have employed is not a new one, it has proved so successful and so rapidly ameliorative that we believe it should be given a more extended trial.

In 1914, Barth[1] reported recovery in three cases of streptococcus meningitis following lumbar laminectomy and drainage. It was our good fortune shortly after this to have admitted to the surgical ward of the St. Louis City Hospital the following cases:

CASE 1.—*History.*—L. B., an Italian laborer, aged 65, was brought to the City Hospital, Oct. 27, 1914, at 12:50 p. m., complaining of pain in the back of his neck, vomiting for the last three days, and pains in his legs. He was very stupid and spoke little English. Questioning elicited the following indefinite history: About three weeks before he entered the hospital, he fell about 7 feet from a huckster's wagon, alighting on his head, neck and shoulders. He suffered a laceration of the scalp, and was unconscious for a few moments. Following this accident, he was unable to work because of pain in his head, weakness, nausea, and "whistling in his ears." He remained at his employer's for three weeks under home treatment, until the present attack began, at which time he was brought to the City Hospital. He was a wandering Italian laborer, and unfamiliar with the country. He was injured in a rural district, some miles from the city, and long distance telephone communication with his employer failed to add anything to the foregoing history.

Examination.—The patient was fairly well nourished and developed, and was conscious, but dazed. General physical examination revaled nothing, except those changes due to oncoming senility. Neurologic examination: Pupils small, left smaller than the right, regular in outline, react to light and accommodation; facial contraction apparently equal, tongue deviates slightly to the right; neck rigid; upper tendon jerks equal, but very active; abdominal and cremasteric reflexes equal, but active; knee-jerks equal, but very rapid; Achilles active and equal; no ankle clonus, no Babinski, Chaddock's external malleolar sign positive on the right; double Kernig; lower extremities hypersensitive; patient disoriented as to time and person, and speech is rambling if attention is not held. Temperature 97.6, pulse 72.

At 8:30 p. m. or seven hours later, the patient was unconscious, and could not be aroused. Examination revealed a very rigid neck, abdomen retracted and hard, a double Kernig sign, and Babinski with Chaddock's external malleolar sign. Temperature 98.4, pulse 62. On lumbar puncture, a turbid fluid escaped under pressure. Examination of a centrifuged specimen showed numerous pus cells, with extracellular organisms resembling streptococci. Bouillon and agar cultures examined the following day showed pure cultures of streptococci. After lumbar puncture, the diagnosis of purulent meningitis was justified, and immediate operation advised.

Operation.—The patient was prepared for operation, and at 11 o'clock, under spinal anesthesia, a typical lumbar decompression was performed. The spinal anesthesia was a complete success. An incision was made over the third and fourth lumbar vertebrae. The muscles were separated from the spines of the third and fourth vertebrae, and when the bleeding was controlled, the spinous processes were removed at the base with bone forceps. The Hudson burr was used to perforate the laminae at the base of the divided spinous process, and the rest of the laminae were removed with rongeur forceps. The ligamentum subflavum was then incised to expose the dura of the cord. In order to prevent the too rapid escape of the spinal fluid, it was thought best to lower the head of the table. The dura was then incised and a free escape of turbid fluid took place, which was readily controlled by gauze sponges. A rubber dam was then inserted to the dura and the wound carefully closed in layers except for the drain in the lower end of the wound.

The postoperative course of this case was uneventful, except for loss of sphincter control for a period of about nine days. His temperature was never above 99 degrees; he regained consciousness after two days and complained of having headache for several days. Neck rigidity disappeared on the fifth day following operation, and Kernig's sign disappeared several days later. The drain was removed on the fifth day following operation. On the fourteenth day, the patient was up in a wheel chair, and was walking two days later. Cerebrospinal fluid escaped from the wound almost until the time of his discharge, but the wound closed externally with slight meningocele. He was discharged, recovered, Nov. 27, 1914.

CASE 2.—*History.*—M. K., a schoolgirl, aged 8, was brought to the City Hospital Dec. 16, 1914, with the following history: Five weeks before, she had become ill with an attack of tonsillitis, to which she was subject. She apparently recovered from this attack, but about three weeks ago her ears began to ache, and a family physician, who was called, put drops in her ears, which gave her relief. At this time, a swelling about the size of a walnut appeared behind her right ear, but soon disappeared. December 13, the patient again became ill, complaining of severe headache, and was brought to the hospital three days later. On her entrance to the hospital, the child appeared quite ill. She was conscious and rational, but cried and moaned from pain in her head. She vomited several times the day of her entrance. General physical examination revealed no gross lesions; pupils were equal and reacted to light and accommodation; tonsils were large and injected; her neck was slightly stiff, but yielded to manipulation with some pain; she had slight tenderness over the right mastoid. Temperature 99.8, pulse 92. Neurologic examination elicited no pathologic reflexes; Kernig's sign was not present. At this time, a provisional diagnosis of mastoiditis was made.

For three days following her entrance to the hospital she rested well, with no medication. An ice bag was applied to the right mastoid region. Rather suddenly on the evening of December 19, three days after entrance, her temperature rose to 100.4, she complained of severe headache, and examination showed a rigid neck and a double Kernig. A lumbar puncture produced 20 c.c. of bloody fluid. By the next morning she had developed an internal strabismus, neck rigidity was marked, Kernig's sign was very pronounced, and her temperature was 103.4, pulse 120. A lumbar puncture resulted in 20 c.c. of cloudy fluid. Examination of a centrifuged specimen revealed many leukocytes with streptococci. Cultures examined the next day showed pure cultures of streptococci. At 6:30 p. m. an operation was advised and lumbar decompression performed.

Operation.—Under ether anesthesia a 2-inch incision was made over the third lumbar vertebra. The muscles were separated from the spines and the third and fourth spinous processes were removed with bone forceps. The Hudson burr was then used to trephine through the laminae at the base of the divided spinous process. The ligamentum subflavum was then incised and the dura exposed. At this point

1. Barth: Arch. f. klin. Chir., 1914, cv; abstr., THE JOURNAL A. M. A., Oct. 24, 1914, p. 1509.

the head of the table was lowered to prevent the too rapid escape of the spinal fluid. The dura was then incised and a turbid fluid escaped. A rubber dam was then placed on the dura and the muscles were sutured in place and the skin closed, except at the lower angle where the drain came out.

The postoperative course of this case was much more severe than in Case 1. The temperature varied from 102 to 101 F., and did not reach normal until January 4. The most striking and alarming feature was a rapid pulse, which remained 128 to 140, until January 4, when it dropped to 96. The patient complained of backache and headache for about four days following the operation. For two weeks following the operation, she was rather weak, but while her convalescence was slow and prolonged, attention must be called to the fact that symptoms of meningeal irritation were never prominent, and after the fifth day there was no evidence of meningeal irritation otherwise than a slight rigidity of the neck and a spasticity of the limbs, which remained until about January 10. After the fourteenth day, convalescence was progressive, and the patient was discharged as recovered, Feb. 6, 1915.

The result in these cases was so remarkable that we began to look up the literature on the subject, and found reference to similar operations performed by Barth,[1] Rolleston and Allingham,[2] Wynter,[3] Cushing[4] and others, although it was later on condemned by Cushing along with the operation of cerebellar decompression combined with laminectomy and through-and-through irrigation advocated by Leonhard Hill. The objection to the method of Hill as well as that of laminectomy was that the purulent exudate at the base of the skull sooner or later blocked off the escape of the cerebrospinal fluid from the foramen of Magendie, and thus defeated the purpose of the operation. That this objection is open to argument is seen by the work of Barr.[5] He trephined a patient dead from meningitis and did a lumbar puncture, leaving the cannula in place. Then he tapped the lateral ventricles and allowed a methyl blue solution to flow into the ventricles under a very low pressure, and observed the escape of the fluid from the lumbar cannula, showing that even in this patient dead from meningitis the normal channels of the cerebrospinal fluid were not blocked. Postmortem examination showed that the methyl blue fluid had found free access to the base of the brain, and the exudate was thoroughly stained by this solution. He also did the same thing in a patient on whom he had operated as a last resort, using a normal saline solution, and observed its appearance at the lumbar opening. The patient was in no ways injured by the procedure, although dying shortly after this. On the death of the patient he repeated the same thing with the methyl blue solution, and demonstrated the patency of the normal channels. Several patients have been cured by repeated lumbar punctures,[6] and Gorse[7] reports a case of recovery of a patient on whom he had performed a lumbar puncture with a Rosenthal needle, which leaves the sheath or cannula in place for permanent drainage. The patient recovered after thirteen days of continuous lumbar drainage.

Murphy[8] described an operation of drainage of the sacral cisterna with cerebellar decompression and irrigation, and reports a recovery.

2. Rolleston and Allingham: Lancet, London, 1899, p. 889.
3. Wynter: Lancet, London, 1891, i, 981.
4. Cushing: Keen's Surgery, iii, 140.
5. Barr: Brit. Med. Jour., Nov. 26, 1911.
6. Klapp: München. med. Wchnschr., 1915, lxii; abstr., THE JOURNAL A. M. A., March 20, 1915, p. 1039.
7. Gorse: Bull. Soc. de pédiat. de Paris; abstr., THE JOURNAL A. M. A., Dec. 17, 1910, p. 2186.
8. Murphy: Surg., Gynec. and Obst., April, 1907.
9. Haynes: Laryngoscope, xxii, 865.
10. Kopetsky: Laryngoscope, xiii, 797.

Haynes[9] and Kopetsky[10] strongly favor cerebellar decompression and drainage of the cisterna magna, but reported no cures in six cases in which operation was performed in this manner. Day[11] did not get a cure in nine cases with operation by the Haynes method. In spite of strong appeals for the operation, therefore, it does not seem to fulfil the expectations of its advocate.

The successful outcome in our cases was undoubtedly due to the early diagnosis and prompt treatment, and herein may lie the secret of success in this disease. The mortality in acute purulent meningitis is very high, and unless treated surgically is almost invariably fatal. As a rule the onset of the disease is sudden. The symptoms are intense and the course is short, rapidly tending toward a fatal issue. Netter,[12] in a study of sixty-five cases, found that fifty-four died within four days. Death is the result of two factors, increased intracranial tension and toxemia. The first factor can be influenced by repeated lumbar punctures, or by permanent drainage. The second factor of toxemia may be overcome possibly by the dilution of the toxins through the rapid secretion of the cerebrospinal fluid. It is estimated that the normal secretion is replaced every three or four hours by an entirely new supply, and in abnormal conditions, as fracture or lumbar puncture, the alteration in normal tension may result in a very rapid increase in the amount of this secretion.[13]

Streptococcus meningitis is a surgical disease, just as acute purulent peritonitis is a surgical one, and here again we see the analogy; the mortality is extremely high in peritonitis unless we early establish thorough drainage. Therefore we may perhaps draw the conclusion that early operation and permanent drainage will offer a lessened mortality in acute purulent meningitis.

11. Day: Laryngoscope, xxiii, 1041.
12. Netter: Osler's Modern Medicine, vii, 176.
13. Seelig and Hagler: Interstate Med. Jour., March, 1915, p. 248.

VISIBLE ACUTE DILATATION OF THE STOMACH DURING LAPAROTOMY

REPORT OF TWO CASES WITH OBSERVATIONS

W. H. LUCKETT, B.S.A., M.D.
Fellow of the American College of Surgeons
NEW YORK

Frequent reports of postoperative dilatation of the stomach are made, but rarely of a case occurring which is visible through the laparotomy wound during operation. The explanations of the postoperative cases are almost as numerous as the number of cases reported. It has been said that probably more than one cause or a combination of causes may be responsible for such a condition.

I have long been of the opinion that none of the reasons heretofore named as the cause of dilatation of the stomach were entirely satisfactory. I have had the idea that in nearly all if not every case the air had been taken in through the mouth in some modified process of deglutition.

As a boy I can well remember an old horse named Charlie which, when approached for the purpose of being saddled, would gulp down large chunks of air (aerophagy), causing such distention of his belly that it was with difficulty that the girth could be properly

cinched. Veterinarians are familiar with this fact relative to horses.

The two cases reported here with observations may possibly throw some light on this condition.

CASE 1.—A. G., woman, white, aged 22 years, admitted to the Harlem Hospital, Monday, Sept. 29, 1913, had a negative family history, and the previous history was negative except for two attacks of appendicitis. On the preceding Friday the patient was seized with general abdominal pains which after twenty-four hours localized on the right side, in the lower quadrant of the abdomen. The patient had been nauseated but had not vomited; had had fever, and bowels had been constipated. She was brought to the hospital in an ambulance.

Examination.—The patient was fairly well nourished and developed, conscious and rational. Pupils were equal and regular, reacting normally to light and accommodation. Mucous membranes were clean and moist. Tongue was slightly coated. Throat clear. Heart was normal in outline and position; sounds clear, no murmurs heard. Pulse was regular and of good force and tension, increased in rate. Lungs were clear. Breasts were full and soft, and there were no masses or tender areas. The right side of the abdomen was rather rigid, tender and tympanitic; no masses were felt; there was no shifting dulness. Liver, spleen and kidneys were not felt. Skin was clear. Extremities were normal. Lymph nodes were not enlarged. Reflexes, knee jerk. Sexual organs were negative. Urine was clear, amber, specific gravity 1.020, acid; after operation, specific gravity was 1.015. Albumin, glucose, casts, leukocytes negative; few epithelia.

BLOOD EXAMINATIONS

	Sept. 29, 1913	Sept. 30, 1913	Oct. 1, 1913
No. cells counted.....	100	100	100
Leukocytes	10,000	9,400	10,400
Polymorphonuclears	70%	67%	64%
Lymphocytes	30	30	30
Transitionals	1	3	6

Temperature was 102, pulse 80, respiration 20 on admission. Widal partial agglutination but no complete loss of motility. Dil. 1:40, time thirty minutes.

Operation.—Oct. 1, 1913. Nitrous oxid and ether anesthesia, Bennett and open, nitrous oxid gas two bags, ether 3 ounces, was begun at 2:55 p. m., and stopped at thirty minutes. Total time of operation was twenty minutes. Anesthesia was maintained for twenty-five minutes. Anesthesia before operation, ten minutes. Patient took anesthesia well. Skin was prepared by painting with iodin, 3.5 per cent., as usual. A right rectus incision 3 inches long was made through the abdominal wall into the peritoneal cavity. A cecum mobile was found, and an appendix that showed only slightly external inflammatory changes; tubes and ovaries were normal. The appendix was clamped, mesentery ligated, then removed. At this point patient began to swallow (?) air, and the stomach became markedly distended and presented itself at the laparotomy opening, extending well beyond the lower angle of the incision until the lower border of the stomach had reached the brim of the true pelvis. The stomach did not look pale with thin walls, as one would naturally expect from such distention, but it was solidlike, and looked more like a solid mass as a fibroid of the uterus with its red congested color and distended engorged vessels. The finger could hardly indent the wall of the distended stomach. The hand could not possibly be introduced through the wound into the abdominal cavity. It was absolutely blocked by the distended stomach. A stomach pump was hastily inserted with the greatest ease, meeting no obstruction at the cardia. The distal end of the pump was submerged in water. An enormous volume of gas was expelled, as evidenced by large bubbles that appeared in the water. The stomach began to empty and immediately returned to the normal. The abdominal wound was closed with No. 2 plain catgut in three layers, and the usual sterile dressing applied. At the time I was most impressed by the absence of epigastric protrusion or other evidences of abdominal distention. The patient made an uneventful recovery.

Pathologic Report.—The specimen is an appendix 2 inches long, white, no adhesions, no perforations, vessels slightly injected. Histologically, sections show muscularis and peritoneal coats normal, mucosa slightly thickened and infiltrated, small follicular ulcers present on mucosa.

Diagnosis.—Acute catarrhal appendicitis.

Retrospective History (by Dr. Reilly).—For the past three years the patient has been troubled with constipation. For the past year she has been complaining of other digestive disturbances about once a week; she would have attacks of sharp pain in the epigastrium, going through to back; by lying flat on her abdomen the pain would disappear gradually. It was relieved mostly by belching; the patient never vomited. There were no diarrhea, no acid eructations, no heartburn. Dizziness had been almost constant since June last. This dizziness was so marked the last few weeks that the patient had to rest after dinner each day in order to obtain relief. She says she ran a race last spring while at a picnic; at the finish she was seized with sharp pains in the right iliac region. The pain lasted about a week.

CASE 2.—H. P., white man, aged 29 years, admitted to the Harlem Hospital Jan. 9, 1914, with unobtainable previous history, had been very constipated for a year and had had epigastric distress and pains. Pains came on usually from one to three hours after meals. It was impossible to get details of good history. He complained of gas and belching. For the last two weeks the pains had been very bad and he had been obliged to stop work and stay in bed. On several occasions, but especially in the last two weeks, he would wake up with his mouth full of what he thought was blood, which was dark in color. He had no cough, no shortness of breath, had never vomited, and had never seen blood in stool, but it had been very dark on several occasions. There had been no urinary disturbances.

Operation (for gastro-enterostomy).—Anesthesia, gas and ether, Bennett and open, two bags of gas, ether 5 ounces, was begun at 2:25 p. m.; operation, forty minutes; anesthesia, one hour; anesthesia before operation, ten minutes.

While the stomach, which had been pulled partly through the laparotomy wound, was being examined, it suddenly commenced to enlarge. We could distinctly feel and hear large gulps of air (?) entering the stomach and hear a noise in the throat; yet the patient was apparently not swallowing; that is, the thyroid cartilage was apparently still and there was no visible motion of the throat. The stomach was getting larger and larger and so tense that for a moment we were concerned with fear that it should rupture. Firm pressure was being made on the stomach, and an attempt was also made to replace that portion of the stomach outside within the abdomen; but it could not be done. A stomach pump was inserted with the outer end submerged in a basin of water, and large volumes of gas escaped, making itself manifest by bubbling up in the water. The stomach immediately returned to normal size and we proceeded with the examination. A healed-over gastric ulcer was found near the pylorus. A posterior no-loop gastro-enterostomy was performed. The patient made an uneventful recovery, and did not have any further dilatation of the stomach.

Retrospective History (by Dr. Reilly).—Complaint dated back two years. Pain comes on as usual immediately after meals and lasts from fifteen to twenty minutes. Patient has lost 7 pounds during the last year. Has bitter taste in mouth in the morning. Immediately after bowels move, he has severe pain in epigastric region above umbilicus often accompanied by sour eructations. The pain after meals often radiates to the back like a needle sticking him. Urine negative, sputum negative.

Blood Count.—Cells counted, 100; leukocytes, 9,000; erythrocytes, 5,200,000; polymorphonuclears, 72 per cent.; lymphocytes, 20 per cent.; hemoglobin (Sahli) 97 per cent.

It is interesting to note that there was wide divergence in opinion of all those present at both operations as to whether or not the patients swallowed. While we all agreed that we heard the noise in the throat in both cases, it was variously described. We mostly agreed that it was not an ordinary deglutition act. I believe that it was a reflex deglutition act—a kind of clonus of the muscles of deglutition so rapid as almost to escape detection, a spasmodic deglutition of air (aerophagy).

Common to the two cases was the very rapid noise in the throat, and no discoloration of the water in which the tube was submerged. It was a colorless gas that escaped. The stomach was absolutely empty; no fluid, no solid particles escaped through the tube in either case. Neither patient vomited or had abdominal distention after the operation. Neither of the patients had swallowed the anesthetic at the beginning of the anesthesia.

In Case 2, while the stomach was being held in our hands, it felt as if one was holding a gas bag while it was being filled intermittently with volumes of gas. Not only could we hear the noise in the throat and the rush of air into the stomach, but it could also be distinctly felt.

After my experience with the first case I determined to do certain things with the next case should I ever be so fortunate as to observe again such a condition. For instance, I had determined to collect the gas in a bell jar under water in order to ascertain if we had a sudden rapid elimination of gas into the stomach from some very complicated source of which at present we know little or nothing; but when the second case presented itself it came so suddenly and took us so by surprise that we were so much concerned not to let the stomach rupture that we neglected to do those things. It must be understood as a matter of course that the stomach always contains a certain quantity of gas, derived partly from gases swallowed with the saliva, partly from gases which pass backward from the duodenum. The saliva contains much more carbon dioxid than an equal volume of venous blood, a part of which is set free by the acids of the stomach. The air in the stomach is constantly undergoing changes whereby its oxygen is absorbed by the blood, and for one volume of oxygen absorbed, two volumes of carbon dioxid are returned to the stomach from the blood. Hence the amount of oxygen in the stomach is small and the carbon dioxid considerable.

If this be true, then it is not necessary for the patient to swallow the entire volume of air necessary for a given distention for two reasons: First, there is some slight increase in volume from expansion due to the increase in temperature in the stomach of from 20 to 30 F. above the temperature of the air of the operating room. The coefficient denoting the increase in volume for 1 degree F. of air whose elasticity is constant equals 0.002039, and it is probably higher; for the air heavily laden with the more expansive ether fumes, however, it is a negligible increase, to be sure, as compared to the second, the possible sudden doubling of its volume through the more complex mechanism of the interchange of gases.

The fact that both cases showed clear gas from the stomach demonstrates that if the elimination of the black hematogenous highly toxic material common to some forms of sepsis and intestinal paresis comes from the mucous membrane of the acutely dilated stomach, then it does not escape until the distention has been maintained for a definite period. About this time I commenced to watch carefully after operation my patients who were having gastric dilatation, and they were frequently observed, particularly the nervous, high strung sensitive ones, wetting their lips with the tongue, then rolling up a combined bolus of air and saliva, and frequently swallowing. One little fellow in particular who had been operated on for abscess appendicitis with considerable peritonitis had to have his stomach washed two and three times a day because of the gastric dilatation and black vomit. He did not need another washing after being cautioned to cease swallowing. I now regularly instruct patients of this type that they must not swallow air.

Although Braun and Riedel, after considerable experimental work, concluded that they found no evidences of a valvular closure of the cardia, we could not empty by forcible pressure of four hands the stomach of Case 2, but in spite of our efforts to empty the stomach, at each gulp (?) more air would enter and none leave, as if there was a valvelike action somewhere, probably at the cardia.

Considering the enormous mortality of postoperative acute gastric dilatation, variously estimated at from 63 to 75 per cent., I am impressed most by the rapid recovery of both patients without after-effects. The lesson is perfectly obvious; early emptying of the stomach before the overdistention injures the capillaries of the mucosa, and the consequent rapid filling with enormous volume of highly toxic fluids supervenes. The high mortality is due to a too late recognition of the true condition. Acute dilatation of the stomach must be maintained for some time before it can be observed as a distention of the abdomen.

18 West Eighty-Seventh Street.

THE PROGNOSIS OF AURICULAR FIBRILLATION *

HAROLD E. B. PARDEE, M.D.
First Assistant Physician Out-Patient Department New York Hospital
NEW YORK

I shall endeavor to emphasize a fact in relation to patients with auricular fibrillation which seems to me to have attracted much less attention than is due to its importance; that is, that the presence of the irregularity does not greatly increase the gravity of the prognosis.

We have a fair idea of the amount of restricted activity imposed by the different lesions of the cardiac valves, but we are only lately coming to realize that an irregular heart does not of necessity seriously cripple the individual. Sinus arrhythmia we know may be disregarded, and usually looked on as normal; extrasystoles do not seem to lead to hypertrophy or cardiac failure even when present constantly over long periods of time; but the continuous irregularity of auricular fibrillation has been considered a grave abnormality of function. My endeavor will be to point out how this impression arose, and how it should be qualified.

The inception of fibrillation sometimes comes as a distinctly sudden event in the course of the patient's history, with the prompt appearance of symptoms of

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considerable severity. In these cases the heart rate is rapid from the start, in the neighborhood of 120 per minute. Most frequently the rate at onset is slower than this, in the neighborhood of 80 per minute, and this rhythm may be present for a considerable time without symptoms on the part of the patient. On attempting moderate exertion, the rate increases and dyspnea, palpitation or precordial discomfort appear, though at first they do not persist for long. Without treatment, the course is one of progressively increasing limitation of activity. The dyspnea or other symptoms appear with less provocation, the heart rate is more rapid in the intervals, edema appears and the patient is confined to his room or his chair. The heart cannot maintain its efficiency with the shortened diastole resultant from the rapid ventricular rate. It tires more and more easily and is finally completely unable to carry on a sufficient circulation.

This breaking down of the cardiac reserve takes a variable amount of time, the variations depending perhaps on the quality of the cardiac muscle, on the demands the patient makes on his heart, or on the associated pathologic conditions, for fibrillation rarely occurs in an otherwise normal individual. My impression is that this period of failure varies from two or three to many months, though it is usually impossible to mark exactly the time of onset of the irregularity.

Under energetic treatment with digitalis the cardiac failure in either type of case is promptly corrected. Twenty minims of the tincture four or five times daily, or an equivalent amount of the other preparations will usually relieve the dyspnea and palpitation in 24 to 48 hours, and by the fourth day the patient is quite comfortable and the heart rate reduced to 85 or 90. By reducing the dosage of digitalis properly its toxic effects can be avoided, and the heart rate kept in the neighborhood of 60 to 80 per minute. The patient will recover his strength and be able to go about, and will be discharged. He is now, from the physiologic standpoint, just where he was at the onset of fibrillation, except that the heart has suffered from the dilatation and will the more readily increase in rate when called on for extra effort. Increased rate means shortened diastole — that is, a shortened period of rest — and in a month or more cardiac insufficiency is well reestablished.

To show what is often the course in such a case I will introduce the history of a man aged 63, with a heart moderately enlarged, and irregular, but no murmurs. He was first seen in December, 1913, having had edema of the legs at various times for four years, with varying dyspnea on exertion. After three weeks he was so well that he stopped treatment. He returned in May, 1914, again with failing heart, and stopped treatment after two weeks feeling well. He returned with cardiac failure in September and November, 1914, and in January and March, 1915, each time stopping treatment as soon as he felt well. This man is a janitor and does sweeping and cleaning only, having no heavy work.

This is the cycle which gave to auricular fibrillation its bad repute. The chronic circulatory disability with periods of marked cardiac failure, afforded a most unpleasant outlook. We are learning now how to avoid this. The patient must not be discharged when he has recovered his strength after the dilatation, but must be kept under observation, must continue the digitalis, must in fact take enough of this drug so that its effect on the vagus will maintain the heart at its optimum rate, usually about 70 per minute. In my experience this amount of digitalis has varied from 20 to 40 minims of the tincture daily in divided doses.

If by this means we maintain the heart at its optimum rate, the mere fact of irregularity seems to have little if any harmful effect on the patient's cardiac reserve under conditions of strain, and he is not subjected to those periods of circulatory failure which otherwise are a certain though irregular occurrence.

To illustrate what can be done toward making the patients comfortable and even useful and how much this gloomy prognosis must be modified, I will cite some cases under observation at present, in which the patients are able to be about and to work in spite of their irregularity, and some of them are performing unusual physical exertion. Besides the fibrillation, some of these patients have lesions which are of considerable gravity, and these lesions must be taken into account in considering the extent of the patient's disability.

REPORT OF CASES

CASE 1.—A man, aged 47, weight 250 pounds, had an enlarged heart, irregular, but with no murmurs. Systolic blood pressure 240 mm. Hg, diastolic 140 mm. Hg. The urine shows a trace of albumin and at times hyaline casts. He was first seen in June, 1914, with a history of gradually increasing palpitation and dyspnea over a period of six months, and of edema for a month. Under treatment he was soon about again and complaining only of weakness in the legs; was able to climb stairs and to walk without difficulty. He has had no cardiac failure up to the present except on one occasion to be mentioned, and for two periods was at work. During September, 1914, his work involved carring 10 to 30 pounds weight up one or two flights of stairs. He would take from one to four or five loads, and then would have a period of rest. He felt so well that after three weeks he stopped the digitalis, and in ten days had to stop work on account of cardiac failure, with palpitation and dyspnea. His heart rate was now 132. He recovered under treatment, and during December he again worked, loading and delivering pianos, but had to stop this after a month owing to gradually increasing symptoms, in spite of continuing digitalis. His heart rate was 100, and he showed slight edema of the legs, and become dyspneic after walking six blocks. He was soon again in good condition, and has had since then a sedentary occupation, but must take 10 minims of the tincture twice daily to maintain his comfort, and his heart rate at 85. There have been three months of cardiac insufficiency during the last ten months; part of this was due to stopping treatment.

CASE 2.—A man, aged 61, with mitral stenosis and auricular fibrillation, was first seen in August, 1914, with a history of dyspnea on exertion, of varying severity for a period of three years. For two weeks he had had marked palpitation, dyspnea on walking and severe precordial pain. There was no edema. The heart rate was 145 per minute. This man is a janitor, and besides considerable sweeping and brass polishing has to keep a large coal furnace going. After a month, by September, 1914, he was able to work and has continued to do so, taking 10 minims of the tincture three times daily. His heart rate is about 70 per minute. During December he was called on to shovel coal into the cellar. He could not do this for more than half an hour without palpitation and dyspnea. This is the only occasion on which he has complained of cardiac symptoms during his eight months under treatment.

CASE 3.—A woman, aged 64, has mitral regurgitation, roughened aortic cusps and a somewhat enlarged and irregular heart. She was first seen in March, 1912, with moderate edema, considerable dyspnea and cough. This patient does housecleaning for her family, and washing and ironing, and has not been decompensated or had cardiac symptoms since

coming under treatment, a period of three years. She takes 10 minims twice daily and has a heart rate of 60 or 70 per minute.

CASE 4.—A man, aged 25, shows an evident mitral stenosis. In November, 1912, following a very hard basket-ball game he was attacked by precordial discomfort, and palpitation, which decreased and disappeared during a month under treatment. His pulse, though regular before, was now irregular, and has remained so. By January, 1913, he had no cardiac symptoms and medication was stopped. In June, 1913, he again had slight palpitation and dyspnea which was relieved by a month of digitalis, and since then he has been under constant observation though taking no digitalis for periods of from three to four months at a time. He is an active young man in a large printing house. He played basket ball even when fibrillation was present until advised to stop it in March, 1914, and since then has kept up regular gymnasium work. He is able to run for a quarter mile without bringing on more dyspnea than would be shown by an average normal person not in training. His heart rate is usually about 75 and he has been free from cardiac symptoms for two years.

CASE 5.—A man, aged 51, with systolic blood pressure 210 mm. Hg, diastolic 130 mm. Hg, has a heart moderately enlarged and irregular, and showing no murmurs. The urine, at times, contains albumin and hyaline casts. He was first seen in July, 1914, having had increasing dyspnea on exertion and a substernal tightness for the preceding 4 to 6 weeks. His heart rate was 120. There was no edema. He returned to work in two weeks and has continued until the present under the influence of 10 minims of the tincture three times daily, the heart rate being 80. He can climb stairs freely and his work necessitates handling though not lifting 60-pound packing crates. He has been nine months under treatment without symptoms.

CASE 6.—A man, aged 65, with a heart considerably enlarged, irregular and showing no murmurs, was seen in September, 1914, having had some dyspnea on exertion for a year or so, increasing lately and accompanied by edema. He did not have these symptoms after a month of treatment and has been living a normal life since then. He can take long walks and climb stairs with ease. He takes no other exercise and is not engaged in work. He takes 10 minims of the tincture three times daily or if he feels a little out of sorts every four hours. He thinks that increasing the dose makes him feel better though the heart rate is always about 80. He has been seven months under that treatment.

CASE 7.—A man, aged 53, with a moderately enlarged and irregular heart, but no murmurs, was first seen in November, 1913, having had dyspnea on exertion for four months and lately edema. He worked as elevator man and porter in a wholesale house and handled boxes weighing about 30 pounds, loading them on and off the elevator. He returned to work after a month, but on stopping digitalis in January, 1914, his symptoms returned. He was away from work only ten days and has continued since then taking 20 minims of the tincture twice daily and being free from complaints. His heart averages 75 beats per minute. He was free from symptoms for seventeen months, except for a short time when he stopped treatment.

These patients are all in excellent condition at present and have continued so as long as they have remained under treatment, a period varying from seven months to three years. They are free from cardiac symptoms under the ordinary demands of their life. Two of them, Patients 1 and 2, show inability to do work of a very severe character which most of the others have not attempted; Patient 4, on the other hand, had he a regular heart, would be considered to have a remarkable degree of cardiac reserve for one with mitral stenosis.

From the course of these patients we might be able to draw two conclusions, one as to the treatment of such cases and one as to their prognosis. The question of treatment I shall not dwell on because it is pretty generally felt by now that patients with auricular fibrillation should have continual observation and almost continual medication even though they are about and feeling well. The heart needs a sufficient period of rest between beats in order to avoid fatigue and maintain its functional integrity, and this prolongation of diastole can only be obtained by keeping the heart slowed by digitalis to about 70 beats per minute. For this purpose very small doses do not suffice; at least 10 minims of the tincture, twice daily, are usually necessary.

The question of prognosis I wish most to emphasize. It should not be so gloomy as it is at present. Here are seven patients having this irregularity. They are all comfortable, all but one at work, and some of them are performing exercise of no inconsiderable severity. They are doing this, not only in spite of their irregular heart action, but also in spite of the endocarditis, hypertension or myocarditis which is present in each respective case. Were the irregularity of such serious import as it is often considered to be we could not have patients so free from discomfort as these are for such long periods of time.

Cowan, in his recent book, states that the prognosis in this type of irregularity is always more grave than in comparable cases with sinus rhythm. "The inception of permanent auricular fibrillation is the beginning of the end, though many patients are able to lead quiet lives for a year or two." Lewis, in Osler's System of Medicine, says that fibrillation "loads an already defective muscle with an extra burden, the burden of increased ventricular rate and shortened diastole."

Mackenzie appears to feel less pessimistic as to the prognosis of the arrhythmia. "It is in all probability the extent of the divers associated pathologic conditions which determines the prognosis of auricular fibrillation." He has seen patients who in spite of treatment failed rapidly after the onset of the irregularity, but has "repeatedly seen fibrillation set in and the individual be altogether unconscious of its presence" for a time. He reports the case histories of three patients who were about and living nearly normal lives for six years after the irregularity was noticed, and one for twelve years after.

It is but comparatively recently that we have learned the necessity of continual medication in the presence of auricular fibrillation. Mackenzie, who was the first to make use of it, will be noticed as having given the least severe prognosis. I feel that we should go even further than Mackenzie and say that if the heart is kept slowed by proper treatment the prognosis of auricular fibrillation should be no more grave than that of the associated pathologic condition.

SUMMARY

The continuous irregularity of auricular fibrillation has been looked on as causing a poor prognosis. This is due to stopping treatment as soon as the patient recovers from an attack of acute cardiac failure.

By continuing the digitalis in sufficient quantity to keep the heart slowed to about 70 beats per minute, there will not be a recurrence of the cardiac failure.

Seven such cases are cited in which the patients have remained under treatment without cardiac symptoms for periods of from seven months to three years.

Since these cases are all complicated by conditions of considerable gravity, and since they have performed such considerable physical exertion so long as their heart was maintained at a slow rate, it is concluded that the irregularity, per se, adds little or nothing to the gravity of the prognosis of the individual.

156 East Sixty-First Street.

TROMBIDIOSIS

GEORGE MANGHILL OLSON, M.D.
Assistant in Dermatology, University of Minnesota Medical School
MINNEAPOLIS

Trombidiosis, or to use perhaps a better term, trombidiiasis cutis, is a condition of the skin, due to the attacks of the red jigger. It has long been known, although it is evidently infrequently diagnosed, in spite of the fact that hundreds and thousands of cases occur in the United States each summer. In Minnesota there are many hundred cases each summer during the months of July, August and September. Diagnosis is important, as proper treatment relieves the patient of many days of suffering, amounting in some cases to a kind of torture, as Erasmus Wilson[1] has expressed it; and clears up many puzzling cases of skin disease occurring during the summer season. Synonyms are "autumnal erythema" and "harvest disease."

The parasite which causes this condition in Minnesota belongs, in the cases which I have examined, to the species *Trombidium irritans* or *Leptus irritans* (Riley). The hexapod larva only attacks man. The adult jigger has eight legs and is found on bushes, grass, etc., never attacking man. The *Trombidium irritans* or red jigger is also called the harvest bug, harvest mite, mowers' mite, red bug, chigger and gooseberry bug. It belongs to the family of Trombidiidae under the order of Acarina. There are two species in America, the *Trombidium americanus* and the *Trombidium irritans*. The *Trombidium americanus*,[2] the rarer form of the jigger in America, is pyriform in shape. It buries the anterior half of its body in the skin, causing a papular eruption. It attacks children especially, and is often found in the scalp and axilla.

The *Trombidium irritans*, the cause of trombidiosis in Minnesota and probably most of the cases of trombidiosis in the United States, is rounded or oval, and orange red. It is from 0.178 to 0.1855 mm. in length, and from 0.1295 to 0.140 mm. in breadth. It has three pairs of long legs (0.1925 mm.), covered with numerous fine hairs. These hairs are not so coarse or so numerous as those shown in the illustration in Kuchenmeister.[3] Each leg terminates in fine claws. The head shows very clearly the lancetlike piercing apparatus, by means of which the mite gets under the skin.

The *Trombidium irritans* is found here mainly on the grass and bushes near the numerous lakes and streams, especially where the soil is sandy. In Minneapolis the red jiggers are found at the sandy beaches at Lake Calhoun, often attacking the bathers at the Public Baths, causing considerable anxiety to some of them, who fear they have some serious skin disease. They are also quite frequently found at Lake Minnetonka. The red jigger may be found on grass, bushes, corn, clover, grapevines, gooseberry bushes, weeds, blackberry bushes, beans and room flowers. In England the red jigger is found especially in chalky or limestone districts near the sea. The same or a similar parasite is found on the dog, mole, fieldmouse, grasshopper, fly and mosquito.

The red jiggers or mites deposit eggs in or on the ground in the early part of July.[4] As many as 400 of these brown spherical eggs may be found massed together. After a short time the larvae with three pairs of legs appear. Normally they feed on various insects as plant lice, young caterpillars, etc. It is at this stage that they may attack man. In a few weeks, after feeding on some kind of insect, the larva changes to the mature adult mite. The mature mite is parasitic on insects, but does not attack man. The mature mite hibernates in sheltered places or in the soil and appears the next spring. There seems to be but one brood a year.

SYMPTOMATOLOGY

The *Trombidium irritans*, on finding itself on the human body, runs about very actively, and soon selects a place to bore into the skin. By means of its long legs the jigger raises its body and pierces the skin at right angles, and if possible, along a hair follicle. If undisturbed it makes its way until its body is entirely concealed in the skin, where it dies in about a week. In one or two hours the jigger has sunk its head into the skin, and the patient commences to experience a marked itching sensation. If the patient is seen at this time he will unerringly point out the location of every jigger on his body, even if forty or more are present, as in one of my cases. After ten or twelve hours the animal is completely buried in the skin. Usually marked urticarial swelling now occurs, so that often the jiggers cannot be seen, even after very careful examination. Erythematous, urticarial, papular, pustular and eczematous lesions may occur, but urticarial lesions constitute the ordinary form of the disease. The itching is greater than that from any other parasite. Banks[4] states that the red bugs burrow beneath the skin and cause intense itching. "It is an unnatural situation for the mites, and they soon die; but the waiting is not pleasant."

The jiggers are often arranged in semicircles or in the form of a necklace, especially when occurring on the body. The *Trombidium irritans* may be found on the feet, ankles, legs, arms and, especially in women, about the breasts and waist line. Fever may be caused by the jiggers in some cases. Some persons are immune and never suffer from attacks of the *Trombidium irritans*, even when in badly infested places, where their companions are severely attacked. Other persons are frequently attacked even when they stay a short time in places that are not badly infested. The reaction of different individuals also varies, some having marked urticarial lesions, and others simply an erythema about the bite. The urticarial swelling about the bite is markedly increased by rubbing and scratching.

DIAGNOSIS

The disease occurs only in July, August and September. Severe itching, with an urticarial eruption on

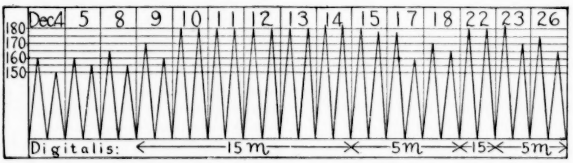
1. Wilson, Erasmus: Diseases of the Skin, 1857.
2. Duhring, L. A., and Stelwagon, H. W.: Pepper's System of Medicine, 1886, iv.
3. Kuchenmeister, Frederich: Manual of Parasites, Sydenham Society, 1857.
4. Banks, Nathan: Proc. U. S. National Museum, 1905, xxviii.

the arms, legs or trunk, in patients who are near the lakes during these months, is suggestive of trombidiosis. On close examination, the bright orange-red mite can be made out, often in the center of an urticarial papule. Trombidiosis must not be confused with the straw itch due to the *Pediculoides ventricosus*. Straw itch is caused by a similar mite, which, however is white, and does not burrow into the skin. The disease caused by the *Sarcopsylla penetrans* or "jigger flea" does not occur here.

PROPHYLAXIS AND TREATMENT

Prophylaxis consists in keeping away from infested places, and, if exposed, a bath should be taken as soon as possible to remove or drown the mites.

Practically all the books and articles on this subject recommend sulphur ointment, alkaline washes, etc., which certainly give little relief, and do not mention the extraction with a needle and treatment with tincture of iodin, which I have found very effective. If diagnosis is made during the first twelve or twenty-four hours, all the jiggers can be easily removed with a needle. This requires good eyesight and some skill and practice. The jiggers as removed should be placed in a bottle containing alcohol, as some of the jiggers are very active after removal with a needle, and will again bore into the skin if they have an opportunity to do so. After twelve hours, removal is more difficult, because of urticarial swelling, although often many may be found and removed. A peculiar feature of these cases is that the pruritus is so annoying that all patients enjoy the search for the mite, even though considerable bleeding results from the use of the needle. After removal of the mites, relief is pronounced, and the lesions quickly disappear. After each jigger is removed, the spot should be touched with tincture of iodin. This is also the best remedy for the lesions in which the jigger cannot be found. In these cases, painting tincture of iodin on each day gives considerable relief, and within a week the jiggers die and the pruritus ceases.



First four days, one half of beats heard at from 160 to 170 mm. Hg; all the beats heard at 150 to 160 mm. Hg; definite alternation on 15 minims tincture of digitalis every four hours, the blood pressure rose to 180 mm. Hg and alternation disappeared.

SUMMARY

1. Trombidiosis or trombidiiasis cutis, the condition of the skin due to the attacks of the red jigger, occurs commonly in Minnesota and probably in nearly all the states of the Union.

2. Trombidiosis occurs only in July, August and the early part of September.

3. Removal of the jiggers by means of a needle and the application of tincture of iodin is the most effective method of treatment.

Knowledge, the Enemy of Quackery.—"No laws will ever be able to prevent quackery, while people believe that the quack is as honest a man, and as well qualified, as the physician. . . . The most effectual way to destroy quackery in any art or science, is to diffuse the knowledge of it among mankind."—William Buchan, M.D., in *Domestic Medicine*, 1783.

THE DETERMINATION OF PULSUS ALTERNANS BY THE SPHYGMOMANOMETER

CAROLINE McGILL, M.D.

BUTTE, MONT.

The grave significance of pulsus alternans has been abundantly confirmed. Any simple method for the detection of the condition certainly deserves emphasis. Herrick[1] calls attention to the value of the sphygmomanometer in diagnosing alternating pulse. He says:

> When the systolic pressure is being tested in a patient in whom an alternating pulse is present, a manometer pressure may be reached that cuts off every other beat—the weaker beat—thus halving the rate of the pulse at the wrist.

I have used the same method for some time and have found it reliable and most helpful. The following case illustrates the condition and confirms Herrick's findings. In this case the effect of digitalis therapy on pulsus alternans is well shown merely by following the blood pressure. The blood pressure was taken by the auscultatory method.

Mr. X., aged 53, entered Murray Hospital, Dec. 4, 1914, complaining of marked dyspnea and a severe cough. The family history was negative. The patient had always been exceptionally strong and had lived an active outdoor life. He gave a history of hard chancre on the finger twelve years previously, followed by some skin manifestations. He had thorough mercurial treatment at the time, and three years ago salvarsan, with repeated courses of mercury since. Four years ago the patient received a severe injury to the thorax and since then has been slightly dyspneic. Otherwise, the personal history is negative. The patient was seen at this hospital in 1911; then, the Wassermann was negative. The patient showed rather marked arteriosclerosis and mild chronic nephritis. The blood pressure at that time was 190 mm. Hg. The urine had a specific gravity of 1.010, a trace of albumin, and an occasional hyaline cast. The heart was slightly enlarged.

On his present admission to the hospital the patient gave a history of a heavy, severe cold several weeks before, followed by marked dyspnea, and a persistent cough with asthmatic attacks at night. On examination, the patient showed marked myocardial weakness. The heart, both to percussion and Roentgen examination, was very large; the right heart was markedly dilated. The pulse was of fair volume, rather high tension, regular rhythm, rate one hundred per minute. No alternation could be detected by the touch. The patient was markedly orthopneic. There were a few râles at the bases of the lungs. There was slight edema of the ankles and of the eyelids. The Wassermann and luetin tests were negative. The urine was 600 c.c. for the twenty-four hours, specific gravity 1.022, and showed a trace of albumin and an occasional hyaline cast; occasionally there was occult blood. The systolic blood pressure was 160 mm. This, because of the high pressure recorded in 1911, was considered cause for alarm. While the systolic

1. Herrick, J. B.: Pulsus Alternans Detected by the Sphygmomanometer, THE JOURNAL A. M. A., Feb. 27, 1915, p. 739.

blood pressure was being taken, it was observed that, between 150 and 160 mm., only one half of the beats could be heard; there was typical alternating pulse. The heart showed tick-tack rhythm. The chart shows the condition well and the variation in the pulse when digitalis was administered.

December 9, the highest systolic pressure was 170 mm. One half of the beats came through at this height; all of the beats came through at 160 mm.; all sounds disappeared at 130 mm.; there was definite tick-tack rhythm. On that day the patient was given tincture of digitalis, 15 minims every four hours. Twenty-four hours later the blood pressure went to 180 mm., and all beats went through at this point; the alternation had entirely disappeared; all sounds were gone at 140 mm.; the tick-tack rhythm had disappeared; the second sound was quite sharply accentuated.

December 11, 12 and 13 the blood pressure remained at 180 mm., with no alternating quality present. December 14, the dose of digitalis was reduced to 5 minims every four hours. December 15, there was slight alternating and two days later the condition was marked. The highest systolic pressure was 178 mm., and all beats came through at 160 mm. December 18, the patient was again put on 15 minims of the digitalis. The blood pressure promptly rose and showed no alternation. Two days later the dosage was again reduced to 5 minims, and pulsus alternans promptly returned.

The patient left the hospital, December 26, much improved, but still dyspneic on slight exertion. He soon began moderate work. His doctor reports that the decompensation rapidly returned. By March 1, 1915, there was marked edema of the extremities, with extreme ascites. The patient died March 28, 1915.

CONGENITAL ABSENCE OF PATELLAE

AND OTHER PATELLAR ANOMALIES IN THREE MEMBERS OF SAME FAMILY

GEORGE RUBIN, M.D.
CHICAGO

Although a number of observers have reported cases of congenital absence of patellae, yet out of six standard textbooks of anatomy consulted, only one (Piersol's) calls attention to this anomaly. It says:

> Congenital absence of the patella on one or both sides has been noted in a number of instances, and has in some cases been observed in several members of the same family. The functional disability was slight or altogether unnoticeable.

These observations agree perfectly with the findings in cases here presented.

Another anomaly which exists in two of the three cases is an incomplete development of the thumb nails. The two conditions, namely, absence of patellae and absence of thumb nails, are strangely correlated.

Little[1] collected eighteen cases in a family of four generations in which there were no patellae and no thumb nails. He does not state whether the two conditions coexisted in all the cases or whether some had one and some the other, or how many had both anomalies. It is, perhaps, reasonable to suppose that those conditions existed singly in certain individuals. Heredity is certainly a strong factor in these cases. The three cases in this report show plainly the influence of heredity.

CASE 1.—Mrs. W., aged 33, born in France, had unimportant family history except that her mother had no thumb nails. The patient had had rickets in infancy; otherwise the personal history was uneventful until about ten years ago, when a heart lesion was discovered. The lesion is still present and consists of a mitral regurgitation. Except for the murmur, the patient shows no other symptoms. The thumb nails are practically absent. Some horny tissue is present right near the matrix. The right patella is about half the normal size. The left patella is no larger and is displaced, but the latter condition was due to an accident.

CASE 2.—Robert W., aged 10, son of Mrs. W., Case 1, also born in France, had rickets, but no other conditions that would have any bearing on this case. While looking over the boy for an eruption which was diagnosed measles, my attention was drawn to the peculiarly shaped knee. The anterior aspect was flat and looked very broad in proportion. On close examination no patellae could be felt. This was later confirmed by roentgenoscopy. The nails of the thumbs were normal.

CASE 3.—Henriette W., aged 4 years, born in Chicago, daughter of Mrs. W., Case 1, and sister of Robert W., Case 2, was a marantic baby and has still symptoms of pronounced rickets. There were no other conditions relevant to the case. The knees were examined on account of the findings in her brother and with the same result, that no patellae could be found. It was also verified by roentgenoscopy. The thumb nails are partly developed.

The patella is known as the largest sesamoid bone in the body. The anterior surface is covered by the fibers of the quadriceps extensor tendon, which serves as its periosteum. The development begins in the third fetal month as a cartilaginous deposit. Ossification begins between the second and fifth year. The bone is not fully formed till after puberty or even later. The function of the patella, according to Lickley,[2] is as follows:

> The patella forms a more suitable pulley for movements around the condyle than the tendon itself. A minor advantage is of keeping the upper end of the patellar ligament in a plane well in front of the axis of flexion and extension. There is also a defensive function. The most important function is to supply the quadriceps extensor muscles with a lever on which to act.

As far as can be ascertained by physical examination and observation by physician and individual, no inconvenience is suffered on account of absence of the patellae. Being mindful of the late and possibly delayed ossification, Dr. Van Horn, who has done the excellent Roentgen-ray work in these cases, used especially soft tubes so as to outline any cartilaginous deposits if there were any, and at the same time to see the course of the tendon. The latter could be easily traced.

It seems difficult to explain these anomalies first singly, that is, the absence of patellae or thumb nails, and second, the relationship of the two anomalies.

In the three cases here presented there seems to be present one common condition, and that is rickets. Whether or not that can be assigned as the cause would be difficult to say. Perhaps an intra-uterine rickets with or without postnatal rickets is the cause of these peculiar phenomena.

25 East Washington Street.

1. Little, quoted by Thorndike: Tr. Am. Orthop. Assn., Philadelphia, 1898.

2. Lickley, J. Dunlop: Jour. Anat. and Physiol., 1904, xxxviii.

To Facilitate Expulsion of the Placenta.—I have often experienced the ease with which the placenta presents itself at the vaginal orifice on requesting the patient to flex the knees and raise the hips slightly from the bed—of course the fundus is firmly grasped before and during the procedure.—J. T. LELAND, M. D., Herman, Minn.

Special Article

PRACTICAL PHARMACOLOGY *

(*Continued from page 1989*)

XXIV

EVACUANTS—(*Continued*)

4. *EVACUANTS ACTING ON THE RECTUM*

Irritation of the rectum reflexly induces peristalsis in the colon and leads to evacuation of the feces. This rectal irritation may be induced in various ways, the simplest method being a form of local irritation by means of a suppository of soap or glycerin, the injection of a small amount of glycerin or distention by the injection of cold water, or warm water to which soap, glycerin, or other mild irritant, has been added.

If constipation is the result of sluggishness of the movements of the colon, the moderate distention of the rectum by cold water alone will usually suffice to cause a normal evacuation. When the feces have become hard and dry through absorption of an undue amount of their fluid, the normal peristaltic movements are insufficient to drive the intestinal contents along, especially if these have become aggregated into large masses, and the addition of soap to the warm water which is injected slowly, and in sufficient amount so that it penetrates into the colon, aids in softening the masses so that they become at once more plastic and more slippery, and then the peristalsis which is induced by distention of the rectum will suffice to evacuate them.

It is probable that a tube cannot be passed through the rectum into the colon, but if the fluid be injected slowly and with very slight pressure—not more than that exerted by holding the reservoir a foot above the recumbent patient—it will pass gradually into the colon, and may even find its way into the ileum.

Daily stools do not invariably prevent the accumulation of such dry, hard masses of fecal matter, for the colon is so voluminous that soft feces may be forced past such masses which gradually increase in size until they finally obstruct the entrance into the rectum, and cannot be evacuated until they are softened or otherwise broken up.

A warm 5 per cent. solution of sodium sulphate is preferable to water alone for such an enema, because the salt delays the absorption of the water, and permits it to act on the fecal masses for a longer time than it would otherwise.

Glycerin is irritant through its capacity for withdrawing water from the tissues. When introduced into the rectum it sets up peristalsis almost at once by reflex action on the colon. It may be injected in pure form, or added to water or used in the form of a suppository.

Soap may be added to warm water to increase its irritant action on the rectum, or to soften fecal masses as just mentioned, or it may be used in the form of a cone, cut from a piece of castile soap and inserted about 2 inches.

Molasses, oil of turpentine and various other irritants are used as additions to warm water enemas, but they do not require detailed discussion.

DOSAGE

Glycerin as such is injected into the rectum in doses of from 4 to 15 c.c. (1 to 4 fluidrams) or used in the form of a glycerin suppository. When used in the form of an enema it is usually added in quantities of from 15 to 30 c.c. (4 to 8 fluidrams) to from 500 to 1,000 c.c. (1 pint to a quart) of warm, but not hot, water, to be injected slowly at one time.

Soap enemas are made by dissolving not exceeding 5 per cent. by weight of either hard or soft soap in from 500 to 1,000 c.c. (1 pint to 1 quart) of lukewarm water. Cold water, while often efficient, is not so uniformly satisfactory as water at, or slightly above, the body temperature when fecal masses are to be softened.*

5. *MISCELLANEOUS MEASURES*

It has been stated by competent observers that many cases of intestinal stasis or chronic constipation are due to an overdigestion of the food as compared with normal conditions, and that the absence of bulk and necessary moisture retard or otherwise prevent peristalsis.

An effort has been made to overcome these, largely mechanical, factors by the administration of substances which are not in any way affected in the stomach or intestines but which will increase the bulk of the feces, prevent undue absorption of moisture and thus facilitate elimination. It has long been recognized that certain foods, such as fruits and whole wheat bread, containing a comparatively large percentage of indigestible material, will assist materially in establishing regular habits.

Much the same effect can be obtained by the administration of agar-agar and of liquid petrolatum or liquid paraffin.[1] The former has long been used in bacteriologic work as a solidifying material for culture mediums. It is a gelatin-like substance extracted in the East Indies from various seaweeds and has the property of absorbing and retaining water. It prevents the dehydration of feces in the large intestine by holding water tenaciously and thereby serves to increase the bulk of the feces.

Liquid petrolatum or liquid paraffin has long been used to accomplish much the same purpose, though originally it appears to have been given largely with the idea of lubricating the feces. When administered before meals it evidently enters the intestine and is there mixed with the food material, thereby increasing the bulk of the intestinal material, protecting it to some extent from digestion and preventing the absorption of the contained water.

DOSAGE

Agar-agar is given in doses of from 5 to 15 gm. (75 to 240 grains) of the coarsely comminuted substance and may be taken either in water or mixed with food.

Liquid petrolatum should be a colorless and tasteless product, and may be prescribed as "Petrolatum Liquidum Leve or Grave," in quantities of from 15 to 30 c.c. (4 to 8 fluidrams) half an hour

* This is the twenty-fourth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will appear when this series is published in book form.

1. For a recent study of the clinical use of heavy mineral oil see Bastedo, W. A.: Clinical Experiences with Liquid Paraffin (Liquid Petrolatum), Report to the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry, THE JOURNAL A. M. A., March 6, 1915, p. 808.

or an hour before meals, or in larger doses, from 30 to 60 c.c. (1 to 2 fluidounces) on retiring. Being tasteless and odorless, it can be drunk from a spoon or wineglass, though if preferred, a small amount of oil of peppermint may be added to give a distinctive flavor.

CHOLAGOGUES

Cholagogues are agents which stimulate the liver cells, causing an increased secretion of bile. The greater part of the bile which is secreted normally disappears during its passage along the intestine, but various drugs which increase intestinal peristalsis, or which interfere with the decomposition of the bile by bacteria, cause it to appear in the feces in increased amounts, and such drugs were formerly termed cholagogues, though most of them have no action on the liver cells. Later investigations have shown that very few drugs except the salicylates and bile itself have any true cholagogue action.

Bile is partly an excretion, containing such waste products as cholesterin and lecithin, but cholagogues are employed only with reference to the influence of bile in promoting the splitting and absorption of fats in the intestine, or as an adjuvant to the action of certain evacuants, such as aloes. Bile also indirectly promotes the digestion of proteins in the intestine, since unabsorbed fats envelop proteins and interfere with the action of digestive enzymes on them.

The secretion of bile varies with the amount of blood which circulates through the liver, and it seems probable that a hormone present in the blood stimulates the liver cells to secrete bile. The introduction of hydrochloric acid into the duodenum causes an increased secretion, and it seems probable that this is due to the secretion which is formed from prosecretin by the acid.

Ox bile, or salts of the bile acids and salicylic acid are the only drugs which are commonly used as cholagogues, and their action is feeble at best.

The appearance of fat in undue amounts in the feces suggests the use of cholagogues, but there are seldom any clear indications for their use in adults, except perhaps as an addition to evacuants.

Cholagogues are contraindicated in the presence of jaundice due to obstruction of the bile ducts.

DOSAGE

The dose of the purified ox bile is 0.5 gm. (7½ grains), but much larger amounts may be used. It is best administered in the form of pills, or preferably in gelatin capsules which have been treated with formaldehyd to render them less soluble in the stomach.*

EMETICS

The first stage of the actions of emetics begins with nausea, salivation, increased bronchial secretion, usually sweating, and often a flow of tears. Great muscular weakness attends this stage and the act of vomiting is usually preceded by increased respiration which then becomes irregular and ceases during the vomiting. Usually the saliva drools from the mouth of animals just before emesis occurs.

Vomiting is accomplished by the coordination of a series of actions which include the following: The pylorus is closed, preventing the passage of the contents of the stomach into the intestine; there are antiperistaltic movements of the antrum of the stomach, which move the contents into the fundus; the cardia relaxes while the abdominal muscles contract, compressing the stomach and forcing its contents out through the esophagus and the mouth, and sometimes through the nose. The muscles of respiration are fixed, preventing the aspiration of the vomitus.

The reflexes which control the several active movements and inhibitions of the vomiting act are coordinated through a center in the medulla which lies near that of respiration and which is evidently associated with it physiologically. This center is spoken of as the vomiting center, and stimulation of it either directly or reflexly leads to nausea and vomiting. Occasionally the process is arrested before vomiting actually occurs, and the stage of nausea and general muscular depression may then persist for some time.

There are two types of emetics: those which irritate the sensory nerve ends in the gastric mucous membrane in a specific manner, whereby vomiting is reflexly induced, and those which act directly on the center without coming in contact with the gastric mucous membrane.

Nearly all drugs which violently irritate the mucous membrane of the stomach cause vomiting unless they also induce narcosis or collapse before the emetic action can be developed, and this coordination of the several actions requires some little time, usually from two to ten minutes. Sensory irritation in the stomach does not always cause emesis, and certain drugs induce nausea and vomiting without causing painful stimuli.

The fact that irritants so commonly cause vomiting has given rise to an unfortunate misconception, and it is frequently argued that a given substance must irritate the stomach directly and induce nausea and vomiting if it is irritant when applied to the mucous membranes of other areas, such as that of the nose or conjunctiva. It is true that a substance may be intensely irritant to the nasal mucous membrane and yet be virtually without action on the stomach. This is precisely what one should expect, for one of the functions of the nasal mucous membrane is to protect the air passages against the entrance of foreign bodies, and it accomplishes this by causing sneezing due to irritation of the nasal mucous membrane, hence the latter acquires a high degree of excitability, but the stomach is frequently subjected to the action of a great variety of irritant vegetable substances and it acquires a high degree of tolerance to many of them because its function is to retain ingested material.

Many drugs—perhaps a much larger number than is generally supposed—act directly on the vomiting center. When emesis is the object sought, it may be of less importance to determine the seat of the action than it is in those cases in which it is a side action. We do not know the mechanism of the emetic action of ipecac in full,[2] but this does not interfere with our employment of it, whereas it is of the first importance to know whether this effect can be avoided by proper methods of administration when it constitutes a side action of a drug which is used for its systemic effects. If such an action is central it can be avoided only by proper regulation of the dosage, and not merely by the choice of the channel by which it is administered.

It is understood that these remarks apply to the usual conditions observed in the more common diseases, and not to those in which the stomach is

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will appear when this series is published in book form.

2. Recent experiments indicate that the action is at least partly central.

extraordinarily irritable, for even the sight of food or the odor of a drug may cause emesis in such exceptional conditions, and a drug which would have no effect under ordinary circumstances might then cause nausea and vomiting. A few drugs which irritate the stomach directly are also capable of stimulating the vomiting center when they enter the circulation in sufficient concentration, this being probably true of sodium salicylate, even when it is administered in dilute solution.

Nausea of various grades and emesis are encountered so frequently as side actions that it may be worth while to point out the cause in some of the cases in which it is commonly encountered: Nearly all readily soluble salts either dry or in concentrated solution (from 5 to 20 per cent.), cause irritation of the stomach; this can be avoided by using them in dilute solutions.

Hydrated chloral is also very irritant to the stomach, and should be administered in dilute solution, and preferably in a bland fluid.

The digitalis bodies without exception, drugs of the picrotoxin group, including wild parsnips, which are frequently eaten by mistake for parsnips, tobacco or nicotin, lobelia, morphin, atropin (occasionally pilocarpin), and related substances stimulate the vomiting center directly when overdoses are administered by any channel.

Emetics were used formerly more frequently than they are at present, the stomach tube being employed now in the majority of cases in which it is desired to empty the stomach after poisons have been swallowed, and even after their subcutaneous injection if they are excreted into the stomach, as morphin is. The stomach tube may be used for the removal of fermenting masses of food, but tenacious curds, undigested meat, and vegetables which have not been masticated properly, may obstruct the tube, in which case emetics are preferable.

The removal of poisons from the stomach requires the use of rapidly acting emetics when the stomach tube is not available. Emetics are also used to remove foreign bodies from the esophagus and from the upper respiratory passages, and to relieve spasm of the larynx and bronchi in asthma, in nondiphtheritic croup and analogous conditions.

It is frequently stated that emesis may facilitate the passages of gallstones through the bile duct, and it is possible that their action is explainable at least in part by their causing muscular relaxation of the duct.

The nauseant stage of the action of the emetics will be discussed when the expectorants are considered.

It is often stated that emetics are contraindicated after corrosive substances have been swallowed, because of the danger of rupturing the walls of the stomach when they have been weakened by the corrosives, but this danger must be remote in the great majority of cases which the general practitioner is called on to treat. The mechanism of emesis which has been described does not depend on the contraction of the musculature of the stomach alone for expelling the contents, and the contractions of the abdominal muscles serve to compress the walls of the stomach against the contents, but this does not subject them to any severe tension which alone can cause their rupture. Certainly the removal or neutralization of caustics demands action, even though it may involve some risk.

EMETICS ACTING DIRECTLY ON THE STOMACH

Ipecac

Ipecac contains two alkaloids which contribute to its actions, one of which is of relatively little importance. These are cephaëlin, to which the emetic action is due for the greater part; emetin, which was so named when it was supposed to be the only active constituent present; and psychotrin, which is unimportant.

The different alkaloids of ipecac have not been studied in great detail, and we are not able to determine in every case to which we may attribute a given action of the crude drug.

Emetin is known to be less actively emetic than cephaëlin, but commercial specimens of emetin certainly cause emesis whether they are administered intravenously or by the mouth. Emetin is said to appear in the stomach after its subcutaneous injection, and since it acts slowly after the latter method of administration, we may infer that its action is partly local, but it also stimulates the center directly after its absorption. The alkaloid is also irritant to the skin and to the mucous membranes of the nose and other regions, and when large doses of ipecac are given by the mouth, a portion passes into the intestine and may cause diarrhea.

Emetin possesses a specific action on the ameba of dysentery, and it alone appears to be responsible for the therapeutic effects of ipecac in that disease. It is also actively destructive to the endameba that is said to cause pyorrhea dentalis and pyorrhea alveolaris.

It is said to cause irritation of the intestinal mucous membrane when present in sufficient amount, causing inflammation with paralysis of the capillaries, much as colchicin and arsenic do, the symptoms resembling those caused by arsenic.

Ipecac causes prolonged nausea which is useful when it is employed as an expectorant, but a disadvantage when it is used as an emetic. Moderate doses do not cause such severe depression as antimony.

Zinc Sulphate and Copper Sulphate

These two salts act on the mucous membrane of the stomach and cause vomiting after a fleeting nauseant stage, and as nearly the whole of the dissolved salt is removed when vomiting occurs, the side actions are brief and of little importance in most cases.

When emesis is delayed or when it fails to occur, after the administration of copper sulphate, the latter passes into the intestine and causes diarrhea, but it is absorbed very slowly and almost never gives rise to symptoms of poisoning.

Copper sulphate affords one of the best means at our command of combating phosphorus poisoning when that poison is still present in the stomach. Solutions of copper sulphate deposit an impervious coating of copper on the surface of the phosphorus almost instantly when brought in contact with it, and the rapid emetic action of the antidote serves to remove the phosphorus. The deposition of copper occurs with extreme rapidity even when dilute solutions are used, hence large amounts of dilute solutions are preferable to small amounts of concentrated solutions.

Zinc sulphate causes emesis in the same way that copper sulphate does, and it is equally harmless.

Copper sulphate is used for giving a green color to preserved vegetables, and while there is no proof that enough copper can be taken in this way to cause

injury the practice is properly prohibited in the absence of proof that even such small amounts are altogether harmless. It is said that fruits dried in zinc-lined trays contain notable amounts of the metal, but there is no evidence that they are harmful on that account.

The nauseant stage induced by copper and zinc sulphate is too fleeting to permit of their use as expectorants.

Antimony and Potassium Tartrate

Antimony and potassium tartrate, or tartar emetic, acts locally on the gastric mucous membrane to induce nausea and vomiting, but tartar emetic is more actively poisonous when it enters the circulation than are the sulphates of copper and zinc, its systemic effects resembling those of arsenic, but fortunately, the poisonous actions of antimony are seldom observed after its therapeutic use as it is seldom used except in small doses as a nauseant.

When large doses are taken and vomiting fails to remove the greater part of such a dose, tartar emetic passes into the intestine and causes severe diarrhea with corrosion of the mucous membranes and absorption into the circulation. In addition to the usual effects which accompany nausea and vomiting, tartar emetic poisoning is attended with copious watery stools, fall of blood pressure, and slow and labored respiration and depression of the central nervous system, ending in collapse and death in rare instances. Some depression of the central nervous system is present even with emetic doses, hence it is not well suited for use in debilitated patients. As little as 0.15 gm. (2 grains) of tartar emetic has caused death when vomiting failed to occur after its administration. When vomiting is delayed for an hour or more after the administration of the usual emetic dose, tannin, lime-water or magnesia should be given to precipitate the antimony and the stomach should be washed, after which active purgation should be induced.

Tartar emetic ointment is irritant, resulting in pustulation, after its application to the skin, the exact mechanism being unknown, though it has been suggested that the double salt is decomposed with the liberation of acid, to which the pustulation is due. Antimony destroys trypanosomes even in very dilute solutions. Nauseant doses of antimony are free from danger.

Other Locally Acting Emetics

Warm water, slight irritation of the pharynx, as by tickling with a feather, alum, common salt, alkalies (including ammonium carbonate) mustard and numerous other means are employed in domestic practice to induce vomiting through their reflex actions, but these hardly require detailed discussion here.

Emetics Acting Directly on the Vomiting Center

Apomorphin

Apomorphin is the only drug commonly used as an emetic that induces vomiting by its direct action on the medullary center.

When small amounts of apomorphin are injected subcutaneously, nausea and vomiting are induced within a few minutes, these effects being due to the direct action on the vomiting center in the medulla. Less is required by intramuscular injection, and much less intravenously, to induce the action on the center, but the effects of intravenous administration to dogs are somewhat peculiar in that a definite amount is required—neither more nor less in many cases. If less than the emetic dose is given no perceptible effects are observed; if too much is given depression occurs without emesis, and the animal remains refractory for some time. All doses above the minimum effective administered in any other way cause emesis. Much larger doses are required by the mouth than by other channels, and a longer interval ensues before emesis is induced.

In experiments on dogs effective intravenous doses cause emesis within five minutes usually, the emesis is not repeated, and after ten minutes the repetition of the same dose will again produce the same effect as the first. This may be repeated many times with little difference in the effects of the subsequent doses.

Small doses of apomorphin depress the higher centers somewhat as morphin does in animals, depression following very promptly any excitation; but in man the depression of the higher parts of the brain is much less conspicuous, the muscular weakness and other symptoms noted being for the most part secondary to the emetic action. Cushny states that apomorphin has not caused death in man, though it does occasionally cause collapse.

When small doses are administered the nausea is brief and vomiting occurs but once or twice, but if large doses are used vomiting may be repeated frequently for some time, or there may be prolonged nausea and great muscular weakness without actual emesis, with a slight degree of somnolence.

Therapeutic Uses

The therapeutic uses of the emetics have been suggested already in the discussion of this subject, but it remains to point out special indications for the choice of the emetic.

When it is merely desired to empty the stomach of indigestible or fermenting food, the simplest emetic is to be preferred, and warm water, mechanical irritation of the pharynx, warm solution of salt, warm mustard water, or other domestic measures suffice. When prompt results are imperative, as in poisoning, the use of the stomach tube is indicated, but if this is not available a promptly acting and dependable emetic such as apomorphin is required, and the emesis may be made more certain by resorting to accessory means, such as irritation of the pharynx with the finger or a feather, or the use of one of the domestic emetics, such as water with warm salt or mustard, should the apomorphin prove ineffective in a few minutes.

When simple emesis is desired for the purpose of removing indigestible food, copper sulphate or zinc sulphate may be used, and accessory measures may be employed at the same time.

Syrup of ipecac is still used to induce vomiting in children in nondiphtheritic croup, when it is desired to secure relaxation of the laryngeal muscles.

The use of emetics to facilitate the passage of gallstones through the duct would seem to depend, partly at least, on the muscular relaxation which accompanies nausea, and vomiting, and as this muscular relaxation is greater with apomorphin than with the other emetics in general use, probably because of a specific muscular action of the drug, it probably deserves the preference for this purpose, just as it is utilized in overcoming the motor excitement in acute alcoholism, which, being abolished, is followed by quiet or

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sleep. Apomorphin is also used as a hypnotic in small doses.

Ipecac has been used for many years in the treatment of amebic dysentery, its beneficial actions being variously attributed to its tannin and to its alkaloids. There is no reason to doubt that ipecac owes its actions in this condition to its emetin, and since the doses of this alkaloid which are effective in amebic dysentery are not necessarily emetic, this alkaloid has come to replace ipecac largely for this purpose. It may be given orally, intramuscularly or subcutaneously. Halsey recommends the use of pills of ipecac coated with salol, in order that they may pass the stomach undissolved and act on the amebas in the intestine. He calls attention to the fact that the large doses which are required may cause dysenteric symptoms which may be mistaken for the continuance of the disease. Such large doses are frequently combined with opium to prevent the diarrhea, and to permit the more prolonged action of the alkaloid emetin on the amebas.

The use of ipecac, and especially of emetin hydrochlorid, has been recommended in the treatment of pyorrhea dentalis and pyorrhea alveolaris, which has recently been shown to be extremely common among adults. While emetin is capable of destroying the endameba concerned, reinfection is almost certain to occur, hence the drug can hardly be depended on for a permanent cure.

DOSAGE

The average emetic dose of ipecac is stated to be about 1 gm. (15 grains); the expectorant dose is from one-tenth to one-twentieth the emetic. It is used in minute doses—about 0.005 gm. (1/12 grain) as a gastric sedative.

The initial dose for amebic dysentery is 2 gm. (30 grains) and as this amount will usually cause emesis unless steps are taken to prevent it, it should be preceded by a dose of morphin or opium, or it may be directed to be enclosed in gelatin capsules previously treated with formaldehyd or made into pills coated thinly with salol. Unless care is taken in coating the pills an overdose of salol will be administered. It is obviously better to use emetin for amebic dysentery; it should be given in doses of 0.03 gm. (1/2 grain).

Copper sulphate and zinc sulphate are given in doses of 1 gm. (15 grains) as emetics. They are not used internally for other purposes.

The emetic dose of apomorphin is 0.005 gm. (1/12 grain), injected subcutaneously at intervals of ten minutes until effective, but when used to evacuate poison a somewhat larger dose of apomorphin may be given at once, unless severe depression exists, and emergencies may demand the use of a dose of 0.01 gm. (1/6 grain). It is not recommended as an expectorant, but it is sometimes used for that purpose in doses of 0.002 gm. (1/30 grain).

The hypnotic dose is about 0.002 gm. (1/30 grain) and this or somewhat larger doses may be used subcutaneously in the case of vigorous and violent subjects of alcoholism.

It is stated that 0.004 gm. (1/15 grain) has caused the death of a patient enfeebled by bronchitis, but this must be considered an extraordinary case, and remarkably few deaths have been attributed to it. Apomorphin is practically never given by the stomach to induce emesis, because of the large dose required and the delay in the action.

Antimonials are rarely used for producing emesis at present, but are frequently employed as nauseant expectorants. The emetic dose of antimony and potassium tartrate (or tartar emetic) is 0.03 gm. (1/2 grain) but this use is not recommended; the expectorant dose is 0.001 gm. (1/60 grain) which may be repeated every hour, or so often as may be necessary to maintain a slight degree of nausea and its accompanying increased secretion, provided the dose is not pushed to the point of causing severe depression. It is obvious that robust patients can stand repeated doses better than those who are already debilitated.*

(To be continued)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

CEPHAELINE.—Cephaelina.—Cephaeline is an alkaloid, $C_{28}H_{38}O_4N$, obtained from ipecacuanha root.

Actions and Uses.—These are identical with those of ipecac. It is relatively more emetic and less nauseant and causes relatively more renal irritation and less cardiac depression. It may be employed as an emetic and expectorant.

Dosage.—From 0.005 to 0.01 Gm. (1/12 to 1/6 grain) in pills or as a powder triturated with sugar of milk.

Cephaeline occurs as snow-white, fine, interlacing needles, which readily turn yellow. It is soluble in ether and sodium hydroxide solutions, melts at from 96 to 102 C., and turns brown when heated to 120 C. With Frohde's reagent, a freshly prepared solution of 0.1 Gm. sodium molybdate in 10 Cc. concentrated sulphuric acid, it gives a purple color which hydrochloric acid changes to Prussian blue.

Non-Proprietary Preparation:

Syrup Cephaeline, Lilly.—A syrup containing cephaeline hydrochloride equivalent to 0.088 Gm. of cephaeline per hundred Cc. (¾ grain per fluidounce). Cephaeline hydrochloride, $C_{28}H_{38}O_4N_2.2HCl+7H_2O$, used in this preparation, is required to be white, practically neutral, completely soluble in about 1.5 parts of water or alcohol and also completely soluble in a saturated solution of barium hydroxide. Manufactured by Eli Lilly and Co., Indianapolis, Ind.

OUABAIN, CRYSTALLIZED (See N. N. R., 1915, p. 103).

The following non-proprietary dosage form has been accepted:

Ouabain Ampules, H. W. and Co.—Each ampule contains crystallized ouabain, ½ mg. Prepared by Hynson, Westcott and Co., Baltimore, Md.

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will appear when this series is published in book form.

The Growth of Surgery.—Rational surgery was one of the gifts of the Greeks, but in the 800 years between Hippocrates and Oribasius few names have survived specially associated with this branch of medicine. Who among us off hand could recall more than two or three in addition to Hippocrates and Galen? Yet in this period scores of important schools flourished with great teachers of surgery, men honored in their generation and the glory of their times.—Osler.

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SATURDAY, JUNE 19, 1915

VALUE OF THE LUETIN TEST

The luetin test for syphilis, described by Noguchi in 1911, seems to have fallen into disuse after a rather brief trial. Any test so easy and simple as this, and applicable to so prevalent a disease as syphilis, deserves a thorough trial. Hence a summary of the results obtained in a large series of cases is in order, especially as the review leads to the belief that the reaction is one which clinicians should not neglect.

Luetin is the name given to a sterile emulsion of cultures of the spirochete of syphilis grown from six to fifty days on ascitic fluid-agar (anaerobically). The dose is 0.07 c.c. of the emulsion injected intradermally with an equal amount of normal saline solution. The reaction is considered negative when there results only a small wheal surrounded by a slightly hyperemic, indurated zone from 3 to 4 mm. in diameter, which clears up in four or five days. By general consent, three positive types of reaction are recognized, a papular, a pustular and a torpid. The first is an indurated papule with a surrounding hyperemic zone, which appears twenty-four hours after injection, increases in size up to the fourth or fifth day, and then subsides. The second type is a more intense reaction, and is characterized by a pustule instead of a papule at the point of injection. The so-called torpid type of reaction occurs from four to twenty-eight days after the intradermal injection, and usually takes the pustular form. It is observed most frequently in congenital and parasyphilitic cases. Wolfsohn[1] obtained a torpid reaction in six of twelve patients with cardiovascular lesions. The delay in the appearance of this type of reaction is, of course, a disadvantage.

In general paresis, 75 per cent. of the tests made by Ross[2] gave positive results. In 121 cases recorded by Kilgore,[3] Wolfsohn,[1] Benedek[4] and Boardman,[5] 78.5 per cent. gave a positive reaction. These results are not so largely positive as those with the Wassermann reaction in paresis, the latter test, according to Robertson,[6] being positive in the blood in 99 per cent. of cases, and in the spinal fluid in 94 per cent. In spite of this, there are points in favor of the luetin reaction. It is sometimes strongly positive when the Wassermann reaction is repeatedly negative. Again, it is specific. The luetin test may be quickly performed by the clinician, whereas the Wassermann requires a skilled technician and special equipment, and, under the best of conditions, errors creep in. Tabulated reports of the luetin reaction in tertiary and congenital lues and in tabes are not at hand, but apparently results are positive in about the same percentage as in general paresis.

It has been suggested that severe constitutional disturbances might follow a strongly positive luetin reaction, but the records lead one to believe that this is uncommon. In 351 cases taken from the records of writers previously quoted and from those of Cohn[7] and Boardman and Gorham,[8] not only were severe reactions absent, but also it is definitely stated that no constitutional disturbances were noted. Local tenderness about the point of injection is of frequent occurrence.

Recently the specificity of the luetin reaction has been questioned, since other substances injected intradermally may give a local reaction which cannot be distinguished from the luetin reaction. Such a substance is emulsion of ascitic agar. Neisser explains this on the ground that the skin in late stages of syphilis is especially sensitive to trauma. He and others believe that this hypersensitiveness is in itself characteristic of syphilis, and that the value of the luetin test is unaffected by it.

Most observers are agreed that in untreated syphilis, primary and secondary, the test is valueless. This is explained on the assumption that the luetin reaction is an allergic phenomenon, and depends on the reactivity of the patient to the proteins of the spirochete. In the first and second stages of syphilis, the disease is so active that the patient is unable to acquire enough allergic power, that is, the antibodies necessary for the reaction. In tertiary, congenital and parasyphilitic conditions, the necessary power of reaction has been acquired, and here the test is of value.

Ross found that the degree of reaction to the luetin and Wassermann tests run parallel, that is, if the luetin reaction was weakly positive, there was likewise but slight deviation of the complement in the Wassermann test. Similar results have not been reported by others, and there is no good reason known why such similarity should exist, since the Wassermann reaction is not dependent on antibodies, while the luetin test depends on reaction of antibodies with specific proteins.

1. Wolfsohn, J. M.: The Cutaneous Reaction of Syphilis, Bull. Johns Hopkins Hosp., 1912, xxiii, 223.
2. Ross: Jour. Ment. Sc., 1915, lxi, 244.
3. Kilgore, A. R.: The Luetin Cutaneous Reaction for Syphilis, THE JOURNAL A. M. A., April 18, 1914, p. 1236.
4. Benedek: München. med. Wchnschr., 1913, lx, No. 37.
5. Boardman: Boston City Hosp. Rep., 1913.
6. Robertson: Morrison Lectures, 1913.
7. Cohn: Arch. Ophth., 1912, xli, 15.
8. Boardman and Gorham: Boston City Hosp. Rep., 1913.

The advantages of the luetin test lie in the ease with which it is done, the specificity of the positive reaction, and the fact that it may occur when the Wassermann test gives negative results. These facts warrant a general use of the test.

CLINICAL CALORIMETRY IN THE UNITED STATES

The publication of a series of papers on clinical calorimetry[1] in a special supplement to the May issue of the *Archives of Internal Medicine* must evoke a just pride in American medicine. The first contribution gives a summary of the development of calorimetry, particularly as applied to the human subject. Names familiar to all students of physiology—Lavoisier, Regnault and Rieset, Pettenkofer, Voit, Rubner, Zuntz, followed by the Americans Atwater, Rosa, Benedict, Langworthy and Lusk—are brought into their historical relations. The excellent work of the Boston Nutrition Laboratory of the Carnegie Institution of Washington, with its superior equipment of respiration and calorimetry apparatus, has received mention from time to time in THE JOURNAL. There Professor Benedict and his numerous collaborators have attempted to establish the fundamental standards of metabolism, not only in normal healthy man, but also in certain diseased states. Elaborate investigations on the energy metabolism in diabetics by Benedict and Joslin, and in infants by Benedict and Talbot, are instances of the substantial contributions which have resulted from the efficient activity of the Boston laboratory.

The first respiration calorimeter ever established in a hospital was made possible by the cooperation of the Russell Sage Institute of Pathology and Bellevue Hospital, New York. Graham Lusk became the scientific director of the institute, and Dr. E. F. DuBois its medical director. The evolution of the bed calorimeter constructed by them represents the successive contributions of a number of earnest young American investigators. The intricate technical details of the elaborate apparatus which enables one to measure the energy metabolism and heat production of man from hour to hour are scarcely of interest to the general reader. The accuracy is such that in observations lasting three or four hours the heat production, carbon dioxid elimination and oxygen consumption, as determined by special tests, can be measured with an average error of 0.9 per cent., 0.6 per cent. and 1.6 per cent., respectively. In the words of Lusk, "The Sage calorimeter reports 'of the disturbances that Nature works and of her cures,' without having, as concerns the sick human being, at any time, in the slightest degree, affected any patient to his disadvantage, but rather having yielded information regarding his condition which has been beneficial in his subsequent treatment."

The average basal metabolism (at perfect rest, from fourteen to eighteen hours after a meal) of the men studied in the Sage bed calorimeter in Bellevue Hospital agrees closely with that found derived from observations on many individuals in the Carnegie Nutrition Laboratory at Boston. The New York investigators have adopted the figure of 34.7 calories per square meter of the body surface as the average heat production of normal men between the ages of 20 and 50 years.

Up to the present time, the most notable contribution of the Sage calorimeter has related to the metabolism of patients with typhoid fever, an investigation in which Dr. Warren Coleman has collaborated. The results indicate clearly that, in this disease, protein, fat and carbohydrate are oxidized to the same or approximately the same end-products as in health, and in their oxidation give off the standard amounts of heat. Therefore the law of the conservation of energy applies to fever patients. The basal heat production rises and falls in a curve roughly parallel with the temperature. At the height of the fever it averages about 40 per cent. above the normal, but in some cases rises to more than 50 per cent. above the normal.

Typhoid patients can store body fat on an abundant diet while losing body weight and body protein. Loss in weight and loss of protein are usually, though not necessarily, parallel. This raises the much-discussed question as to whether or not there is a toxic destruction of protein in typhoid fever. The large excretion of nitrogen in fever has been attributed to the influence of a toxin arising in the disease, and likewise to the increased temperature. The well-known work of Shaffer and Coleman[2] with high calory diets proved that there is no toxic destruction in the sense of a nitrogen loss which cannot be counterbalanced by the nitrogen intake. Typhoid patients can be brought into nitrogen equilibrium when their theoretical calory requirement is enormously exceeded. Recent studies in Müller's clinic at Munich[3] show clearly that normal subjects in whom a minimal nitrogen elimination level is established experienced no increase in elimination when their temperatures were raised to about 40 C.

1. Lusk, Graham: Clinical Calorimetry, First Paper, A Respiration Calorimeter for the Study of Disease, Arch. Int. Med., May, 1915, p. 793. Riche, J. A., and Soderstrom, G. F.: Clinical Calorimetry, Second Paper, The Respiration Calorimeter of the Russell Sage Institute of Pathology in Bellevue Hospital, ibid., p. 805. Gephart, F. C., and DuBois, E. F.: Clinical Calorimetry, Third Paper, The Organization of a Small Metabolism Ward, ibid., p. 829; Fourth Paper, The Determination of the Basal Metabolism of Normal Men and the Effect of Food, ibid., p. 835. DuBois, Delafield, and DuBois, E. F.: Clinical Calorimetry, Fifth Paper, The Measurement of the Surface Area of Man, ibid., p. 868. Coleman, Warren, and Gephart, F. C.: Clinical Calorimetry, Sixth Paper, Notes on the Absorption of Fat and Protein in Typhoid Fever, ibid., p. 882. Coleman, Warren, and DuBois, E. F.: Clinical Calorimetry, Seventh Paper, Calorimetric Observations on the Metabolism of Typhoid Patients With and Without Food, ibid., p. 887. Lusk, Graham: Clinical Calorimetry, Eighth Paper, On the Diabetic Respiratory Quotient, ibid., p. 939; abstr., THE JOURNAL, this issue, p. 2094.

2. Shaffer and Coleman: Protein Metabolism in Typhoid Fever, Arch. Int. Med., December, 1909, p. 538.

3. Graham and Poulton: Influence of Temperature on Protein Metabolism, Quart. Jour. Med., 1912, vi, 82. Kocher, R. A.: Ueber die Grosse des Eiweisszerfalls bei Fieber und bei Arbeitsleistung, Deutsch Arch. f. klin. Med., 1914, cxv, 82.

(104 F.) by means of a steam bath, or their heat production was accelerated by very vigorous exercise. This indicates that rise in temperature alone or increase in heat production alone will not cause an increased protein metabolism. In typhoid patients, the situation is otherwise. In the Bellevue cases, food was given which had an energy content much greater than the amount required by the patients as measured directly when they were in the calorimeter. Although the protein content of the diet, as represented by an intake of 15 grams of nitrogen, was ample to establish nitrogen equilibrium had the diet been given to normal men, it did not accomplish this in typhoid fever. Coleman and DuBois insist that it is difficult to see in this anything except the proof that there is an abnormal destruction of protein in typhoid fever. In some cases the protein destruction continued several days after the temperature had reached a low level. It is impossible to escape the conclusion that the destruction of protein is caused by the toxins of the disease.

Doubt has been expressed at times regarding the ability to absorb the large quantity of fat and protein furnished by the high calory diet in the case of febrile patients. In the cases of seven patients reported in connection with the preceding investigations, the average total fat loss was 4.3 per cent. No differences were observed in the percentage absorption of fat in the early and later stages of the fever or up to the end of the first week of convalescence, when the intake was relatively large. The average nitrogen loss in the feces for all the periods amounted to 1.57 grams, or 11.2 per cent. These facts speak well for the alimentary possibilities of the dietary.

No one can read these noteworthy contributions without an appreciation of the splendid spirit of cooperation which has made them possible.

INTERPRETATIONS UNDER THE HARRISON NARCOTIC LAW

Treasury decision 2213, issued June 7 by the commissioner of internal revenue, establishes a new ruling on Section 6 of the Harrison Narcotic Law, the section exempting certain proprietary preparations from the operations of the law. The section provides that preparations and remedies which do not contain more than 2 grains of opium or more than one-fourth grain of morphin or more than one-eighth grain of heroin or more than one-eighth grain of codein, etc., shall be exempt from the provisions of the act. The decision discusses the question as to whether or not "prescriptions" come within the definition of "preparations" or "remedies" as given in the act. The commissioner says:

> The word "preparation" as generally used and understood means ready-made or prepared medicines, and the word "remedies" means that which cures or is efficacious in a specific disease or diseases under all conditions, while the term "prescription" is the written directions or recipe of a physician for the compounding or preparing of a medicine and directions for its use to meet the existing conditions in the case of a particular patient.

Under this interpretation, the commissioner holds that the exemptions in Section 6 do not apply to prescriptions written by registered physicians unless such a prescription is written for a preparation or remedy prepared in accordance with the U. S. Pharmacopeia, National Formulary or other formula, or for a "remedy or preparation" prepared under private or proprietary formula, carried in stock by a dealer, which may be dispensed without a "prescription." Accordingly, the commissioner directs that every prescription containing a narcotic drug in any quantity, unless it is for a preparation prepared in accordance with the U. S. P. or National Formulary, must have indicated on the prescription the name and address of the patient, the date, the name and address of the physician and his registry number. Such prescriptions cannot be refilled, and must be kept on file by the druggist filling them for a period of two years.

This ruling draws exactly the same line in medicinal preparations that exists between ready-made clothing and clothes made to order. A preparation which is put up in accordance with a distinct formula and which is recognized as a definite preparation is exempt, provided it contains less than the minimum quantity of drugs. A physician's prescription, being written to order for an individual patient for a specific purpose, is not exempt, no matter how small an amount of the prescribed drugs it may contain. The practical effect of this decision is, that under it, physicians must include, in all prescriptions containing any opium or cocain or any of their derivatives, the name and address of the patient, the date, and the name, address and registry number of the physician.

At first glance, this decision will doubtless impress physicians as being a discrimination against them and in favor of proprietary preparations. This is true, but it is because the law, as it passed Congress, discriminated against physicians and in favor of "patent medicine." Section 6 of the Harrison law represents the political influence of the "patent medicine" manufacturer in Congress. It should never have been included in the law. Its insertion weakened the law and was due solely to the inability of the members of Congress to resist the pressure from "patent medicine" interests. This section must be repealed; so long as it stands, the Treasury Department has no choice but to enforce it. To use an exemption clause drafted at the dictation of the "patent medicine" interests to exempt physicians' legitimate prescriptions would be an absurdity. There should be no exemptions of any kind under this law. Every preparation of any kind, containing any amount of opium or cocain or any of

their derivatives, should be subject to the operation of the law. Physicians have never asked that their prescriptions should be exempt. The demand for such exemption comes solely from the proprietary and "patent medicine" interests; to satisfy these interests, the special exemption was made.

It has often been said that the best way to repeal unwise laws is to enforce them, rigidly and impartially. Section 6 of the Harrison law should be repealed at the earliest opportunity. Until this is done, it should be enforced. Physicians certainly do not wish to have their prescriptions put in the same category as "patent medicine" fakes and frauds. Let the dope-containing "patent medicine" stand on its own merits, if it has any, and let it be distinctly separated from the prescriptions of reputable physicians. With this understanding of the recent decision, the position of the Treasury Department should receive the approval of all physicians.

Another Treasury Decision (T. D. 2414, June 10, 1915), giving the interpretation of the Internal Revenue Bureau on another portion of the Harrison law, has just been made public. This decision has reference to the limitation on the professional prescription and distribution of narcotics by persons whether registered or not. The decision states that registration is limited to certain named persons, and that persons not legitimately engaged in the exercise of their trade or profession cannot legally register under the terms of the act, and has special reference to the prescription and distribution of narcotics on mail orders.

According to the decision, a party must be a legitimate producer, importer, manufacturer, seller or distributor of the mentioned drugs; likewise, a physician, dentist or veterinary surgeon can register under the act and dispense these drugs "in the course of his professional practice only." Such physician, dentist or veterinary surgeon can prescribe these drugs "when he has been employed to prescribe for the particular patient receiving such drugs" and on whom "he shall personally attend in his professional practice only," and then only "when employed to prescribe for the particular person receiving such drugs."

The decision further states that it has special application to those persons not registered as physicians who prescribe or distribute narcotic drugs or preparations on mail orders received from so-called patients or who, under the laws of the state or municipal regulations, are not permitted to practice medicine. This and the decision first referred to constitute two of the most important and far-reaching regulations in regard to the curbing of the indiscriminate sale and use of "patent" or proprietary medicines containing narcotics or habit-forming drugs. The extent of the so-called mail-order prescription cannot be estimated, but this recent treasury decision will undoubtedly have a tremendous effect on lessening this growing evil.

THE EFFICIENCY OF VENEREAL DISEASE CLINICS

While the value of hospitals is not amenable to mathematical measurement or to monetary evaluation, nevertheless it is possible, and justifiable for those interested, either as donors, medical directors or business superintendents, to ascertain what are the returns from the investment of money, time and scientific service. If, for instance, a clinic is dealing with a class of cases for the most part curable, and if, as must be the case, the objects of the clinic's existence are to cure the patients applying for treatment or at least to render their defects noncommunicable, then it is a wise procedure to ascertain the efficiency of the methods employed as measured by the results accomplished.

Interesting data bearing on the value of venereal disease work in New York clinics were recently presented before the health section of the National Conference of Charities and Correction in Baltimore by the superintendent of the Bureau of Public Health and Hygiene of the New York Association for Improving the Condition of the Poor. It is announced that further results of the "efficiency tests" being carried out by this association will be presented at the San Francisco session of the American Medical Association. This investigation, following work of a similar kind in Boston and Cleveland, brought out striking though not entirely unexpected results. A number of the clinics were studied, and, while in most of them the records were so inadequate as to make any conclusions unreliable, in a few it was possible to ascertain with reasonable accuracy such facts as the percentage of total patients making only one visit, the percentage actually discharged as cured, etc.

It was stated that from 30 to 50 per cent. of the gonorrheal patients came to the clinics only once, a situation which would seem to make inevitable a tremendous waste of time of the physicians in charge, in addition to which there must be considered the futility of a single treatment in this disease, and the fact that many of these patients temporarily relieved, at least in mind, continue to circulate freely in the community, subjecting others to infection. In none of the clinics were more than 10 per cent. of the patients discharged as cured, a condition which physicians have long vaguely realized, but on which, by their personal efforts alone, they are powerless to improve.

As pointed out in the Baltimore paper, several things are needed before an improvement can be assured. The clinic records must be kept so that those in charge may know at least what is happening to the patients; there should be a mechanism, based on a "live" and "dead" record card system, and a method of follow up either by card or visit, which would encourage persistence on the part of the patient with the treatment until cured. An intelligent, forceful, yet sympathetic presentation to the patient of the seriousness of the

disease, either by the doctor or by a trained social worker, as carried out at the Boston dispensary, will do much to activate a theoretically effective record and follow up system.

In the public health problems of today, there is none more important or urgent than the control of gonorrhea and syphilis. In no field can society less afford to waste energy and funds. The necessity for extension, under either private or governmental auspices, of the mechanism for the control of these most difficult and menacing public health hazards is insistent. Certainly the best utilization on the basis of a 100 per cent. efficiency if possible, of the existing facilities, is demanded on the grounds of efficiency, economy and health.

THE UNIVERSITY OF MINNESOTA AND THE MAYO FOUNDATION

The announcement was made last February[1] that the Mayo brothers of Rochester, Minn., had established the "Mayo Foundation for Medical Education and Research," had endowed it to the amount of $1,500,000 and, with certain conditions, had offered it to the University of Minnesota. The relationship proposed was for a trial period of six years, after which, if it proved satisfactory, the foundation would be placed under the complete control of the university. The offer was considered favorably by the administrative board of the medical school, and referred to the board of regents for action. A special committee of the board of regents was appointed to make an investigation and to report back to the board. An abstract of their report was published last week,[2] and on June 9, the recommendations of the committee were adopted by the regents.

The announcement of the proposed union between the university and the foundation aroused an unexpected opposition, and caused a more lively discussion perhaps than has ever been given to a proposed improvement in medical education and research. This opposition was of positive benefit, however, since it resulted in a most thorough investigation of the Mayo Clinic, the research foundation and the terms of the application, and wide publicity was given to the whole matter. This open appeal to public opinion has not only dispelled the opposition but has also more clearly indicated the advantages of the application. The final effort of the opposition was to secure legislative enactment prohibiting the University of Minnesota from affiliating with agencies outside of the campus. This bill, which would have seriously restricted the university's field of activities, failed to pass, and the fact has come to be clearly recognized that the sphere of activity of the university is the entire state, and not the narrow bounds of the university campus.

1. Mayos Give Million for Research, Medical News, THE JOURNAL A. M. A., Feb. 20, 1915, p. 672.
2. THE JOURNAL A. M. A., June 12, 1915, p. 2009.

From a small beginning, many years ago, the Mayo Clinic has developed until it is now recognized the world over. Its aim has been to bring to its clientele the utmost resources of medical knowledge and skill. In fulfilling this purpose, the scope of the medical research has steadily been extended, and a large amount of material and equipment useful in diagnosis as well as in research has been accumulated. Clinical records particularly have been kept and so cross-indexed as to be readily available for statistical study. This development was directly in line with the plan of the Mayo brothers, first conceived seventeen years ago, to establish a research foundation. That affiliation should be sought with the University of Minnesota Medical School was natural, since for years the clinic has been working in close harmony with that school and has obtained from it many research workers.

Medical education in Minnesota has been unified to a remarkable extent in recent years, and it has been placed entirely under the control of the state university. The reorganization of the medical school two years ago resulted in the withdrawal from undergraduate medical teaching of about forty medical instructors and also of several hospitals in St. Paul and Minneapolis in which clinics had been regularly held for a number of years. This condition might have resulted in the formation of another medical school had not the university grasped its opportunity to develop graduate medical instruction. This provided the way by which the excess of teachers and the splendid material in the hospitals could still be used. At the present time, it is stated, graduate courses are being offered in all laboratory and clinical departments except those of genito-urinary diseases and dermatology, and this work has been arranged in systematic courses leading to the graduate degree of Doctor of Science. Provision has been made also for a number of teaching fellowships in advanced medical research. The acceptance of the proposal to unite the work of the Mayo Foundation with that of the university is directly in line with the policy to retain the control of all medical education in Minnesota, both undergraduate and graduate, in the hands of the state university.

The facilities for research and graduate instruction of the university and of the Mayo Foundation in a large measure supplement each other. Such instruction has been best established at the university in connection with the laboratory branches, whereas at Rochester more work has naturally been done in connection with the clinical departments. This being the case, the rotation of graduate students between the university and Rochester will result in a more thorough and all-round training in both the laboratory and clinical aspects of any chosen specialty. Under the plan proposed, the research work at the two places will be unified and harmonized under the control of the University of Minnesota.

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The taking over by the University of Minnesota of this excellent research organization now known as the Mayo Foundation will aid greatly in the development in that state of the highest type of graduate medical instruction and research, such as will compare favorably with, or even surpass, the opportunities to be found elsewhere in this country, or abroad.

THE ACTIVE CONSTITUENT OF THE THYROID

It is nineteen years since Baumann announced his discovery that iodin is a normal constituent of the thyroid gland, and began the series of studies which inaugurated a new era of work on the physiology and chemistry of this organ. Since that time many attempts have been made to determine in what sort of compound the iodin is held in the thyroid, and the relation this iodin compound has to the physiologic and pathologic functions of the gland. While the hypothesis was advanced that the iodin is taken up by the thyroid simply as an adventitious and undesirable chemical impurity, and held where it can do no harm, much as arsenic and other heavy metals are held in the liver, this was not generally accepted; there was too much evidence that the activity of thyroid preparations varies according to the amount of iodin they contain, and some of the crude iodin-containing preparations made from the gland were shown to exhibit many of the physiologic effects that are characteristic of the thyroid itself. The nature of the essential iodin compound, however, was not disclosed easily, and much unsuccessful work has been done in the attempt to repeat with the thyroid the brilliant chemical studies of the active principle of the suprarenal.

Because the aromatic radicals are capable of taking up iodin atoms, the aromatic compounds of the protein molecules (tyrosin and phenylalanin) were strongly suspected of being the nucleus to which the thyroid iodin is bound; but attempts to prove this by analysis, or to construct artificially aromatic iodin compounds with the physiologic effects of the thyroid, were all fruitless. On another page E. C. Kendall,[1] working in the Mayo Clinic, reports the isolation from thyroid glands of a crystalline iodin compound. This substance is believed to be an aromatic compound of iodin, but the aromatic nucleus is not one of the amino-acids existing in proteins, being instead the indol ring. It has exhibited remarkable physiologic activity, and the effects it produces supports the view that it is the chief active constituent of the thyroid gland, so long sought in vain. Of particular interest is the fact that much of the evidence of its activity, as shown by animal experimentation, has been supplemented by observation of its effects on patients with diseases of the thyroid, an important addition to the usual tests on laboratory animals.

1. Kendall, E. C.: The Isolation in Crystalline Form of the Compound Containing Iodin, Which Occurs in the Thyroid, this issue, p. 2042.

While it must be recognized that this work is quite new, and has not yet been corroborated by other investigators, nevertheless the evidence presented seems entirely satisfactory and convincing. Kendall has not yet determined the exact spatial arrangement of the iodin atoms in the indol ring. When this is done, there will be every possibility that the active principle of the thyroid can be prepared synthetically and made available at relatively small cost. In the meantime, the preparation of the active principle in pure form will, if it can be carried out on a commercial scale, make possible much more accurate dosage and better pharmacologic study than can be expected from the crude thyroid tissue with its varying composition and adventitious substances.

Current Comment

PSYCHIC HYPERGLYCEMIA

Much has been written recently about emotional glycosuria and, as might be expected in view of the prominence of blood analysis, about hyperglycemia of nervous origin. Numerous investigators who have employed the highly refined modern technic for the estimation of sugar in the blood have pointed out that various acts incident to experiments on animals are in themselves sufficient to lead to a rise in the sugar content of the circulating medium. Even the manipulations attending the fixation of the subject and the withdrawal of the blood sample have been shown to lead in some cases to an appreciable change in the sugar level of the blood, to which our German colleagues have given the names "Fesselungshyperglykämie" and "Fesselungsglykosurie." The excitation stage preliminary to narcosis with ether, mild operative procedures in the absence of local anesthesia, and similar supposedly insignificant factors, in the belief of a number of investigators, have been demonstrated to leave such evidence of their effect. Loewy and Rosenberg,[1] for example, invariably have found the blood sugar content noticeably higher in animals in which the withdrawal of blood involved some pain. The differences may amount to 100 per cent. At first consideration, these facts strongly suggest the participation of truly psychic influences in the production of the mild hyperglycemia. A prominent rôle has been assigned by some writers to the psychic factor in the "mobilization" of sugar in the organism. Fear, pain and psychic shock enter into this problem. In the pharmacologic institute of the University at Vienna, Morita[2] has tested some of the procedures, such as hemorrhage, mechanical restraint, ether narcosis, diuretics and irritation of sensory nervous elements, which are known to induce a noticeable

1. Loewy, A., and Rosenberg, S.: Ueber die normale Höhe des Blutzuckergehalts bei Kaninchen und Hunden, Biochem. Ztschr., 1913, lvi, 114. Hirsch, E., and Reinbach, H.: Die Fesselungshyperglykaemie und Fesselungsglykosurie des Kaninchens, Ztschr. f. physiolg Chem., 1913, lxxxvii, 122.

2. Morita, S.: Untersuchungen an grosshirnlosen Kaninchen, I, Das Verhalten der Blutzuckerkonzentration, Arch. f. exper. Path. u. Pharmakol., 1915, lxxviii, 188.

hyperglycemia on decerebrated animals. The typical response was still observed in the subjects deprived of their cerebral hemispheres. These facts of experiment, for which the psychic explanation will obviously no longer suffice, may not be strictly comparable with the emotional forms of experiment already mentioned. Nevertheless they raise some new questions in the interpretation of something which has hitherto been supposed to be typically psychic in its origin.

THE MISLEADING NAMES OF NOSTRUMS

The deceptive character of much of the advertising which is attached to the "patent medicine" and nostrum business has become familiar to every thoughtful person, whether he be layman or physician. Frequently the claims made are so preposterous in point of unreasonable statement or exaggerated merit that they might well be classed with other types of submerged humor, were it not for the more serious possibility of the harm potentially hidden. A surprising instance of the penalty which the practitioner is liable to pay for his alliance with the nostrum traffic is furnished in the columns of one of our German contemporaries. The exigencies of the war have awakened a patriotic endeavor to supplant all foreign products as far as possible by materials of home manufacture. This is conspicuously true of proprietary drugs and chemicals. In a formidable list[1] including various products of American origin, such as Angier's Emulsion, Battle's Bromidia, Fellows' Syrup, Listerine, Stuart's Dyspepsia Tablets, Vin Mariani, and other familiar names, supposedly suitable substitutes from German sources are suggested. In the case of one of the foreign nostrums, however, the trade name has evidently been responsible for an amusing bit of advice to the readers of one of the leading medical weeklies. "Prescribe German specialties," the warning states. And forthwith the innocent practitioner is told to replace "Bromoseltzer Emmerson" by some effervescent salt of bromin — to which we may add, What's in a name? In this case 3 grains of acetanilid and 7 grains of potassium bromid to a teaspoonful.

DISPOSAL OF WASTE IN RURAL DISTRICTS

The sanitary disposal of human waste is recognized as one of the most important problems confronting the modern municipality, the successful solution of which has required the exercise of much engineering skill and ingenuity. But for the rural community, the isolated farmhouse, the small settlement, where sewers and unlimited water are as yet unattainable, what device is there that is practicable, that is at the same time cheap, simple, and easily constructed and operated, that is fly and germ proof, that is adapted to the conditions of rural life, and that farmers and dwellers in small towns can be urged to provide with some chance of success? These conditions are all essential, but they are by no means easily complied with. That existing methods or lack of methods of waste disposal in rural districts constitute a real and serious danger has been demonstrated beyond question. Hookworm, typhoid, dysentery, tuberculosis, as well as many forms of intestinal parasites are all spread largely through defective methods of disposing of human waste. Any real or lasting improvement in rural sanitary conditions must be preceded by a radical and permanent reform on this subject. This problem, always urgent, is becoming and will continue to become more important as our rural districts become more densely populated. Bearing on the problem is the United States Public Health Service bulletin, recently issued, on "Safe Disposal of Human Excreta" by Lumsden, Stiles and Freeman. After a general discussion of the problem and its importance, the various types of sanitary privies so far devised are discussed, the manner of construction, advantages and disadvantages, cost, etc., being considered in each case, with illustrations and working plans for their construction. Directions are also given for converting an ordinary insanitary privy into a safe one, as well as directions for cleaning and for final disposition of the contents. This pamphlet should be widely circulated among rural homes. The problem is the same in all parts of the country. It can be solved only by the substitution of intelligent methods for the ones still too commonly in vogue. The question is a vital one to our rural population.

1. München. med. Wchnschr., 1914, No. 39, p. 2024.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

FLORIDA

Dispensary Opened.—The Jacksonville city dispensary was opened for the first time, May 28. The institution will be opened daily from 10 a. m. to noon, and from 3 to 6 p. m., and on Sundays, from 10 a. m. to noon.

New City Hospital.—The proposed hospital for Miami is to consist of five units: an administration unit, a ward unit, a surgical unit, a maternity unit and a private ward unit. About $30,000 is at present available for the construction of this hospital, but it is estimated that $10,000 more will be required.

Bill for Inspection of Schoolchildren Passed.—The Florida Legislature has passed an act to protect and conserve the health and lives of schoolchildren and promote their efficiency by providing medical inspection and subsequent medical treatment. The act was signed by the governor and became a law June 4. This law was drawn up by Dr. Oliver J. Miller, health officer of Sanford, and its passage was due in great measure to his efforts. The bill provides for a thorough examination of all schoolchildren of the state, including rural schools, under the direction of the State Board of Health. An inspector is appointed for each county and no physician is to have more than 2,500 children under his care. The bill also provides for a sanitary survey of all school buildings and their environments. This action shows that Florida is keeping well abreast of the times on the subject of public health.

Bill for State Institution for Feebleminded.—Both the senate and house have passed the house bill 249, introduced by Hon. Henry H. McKenzie. This act provides for the appointment of a commission to investigate the need of state institutions for the care of the feebleminded and epileptics and directs the governor to appoint a commission of five persons, one of whom shall be a licensed physician of the

state, to investigate this matter. The commission is authorized to call on the physicians of the state and on the authorities of city, county, state and private institutions for statistics to enable them intelligently to report to the next legislature. The act appropriates $500, to be used for the payment of traveling expenses of the commissioners. The bill passed had the endorsement of the state medical association. Among those who have been most active in this propaganda are Dr. Daniel C. Main, Welaka, of the Sisco Fruit Company, a farm colony for epileptics, and Dr. William P. Spartling, Welaka, who has given lectures before various societies showing films of epileptic seizures.

IDAHO

Personal.—Capt. Hubert W. Wilson, Twin Falls, and Lieut. J. Elmer Crouch, Payette, M. C. Idaho N. G., have been detailed to attend the camp of instruction for medical officers at Fort D. A. Russell, Wyo.——Dr. James J. Herrington, Gifford, has been appointed a member of the state board of medical examiners to succeed Dr. Russell Truitt, Cottonwood.

South Idaho Physicians Organize.—The Southern Idaho Medical Association was organized at Twin Falls, June 5, and adopted the constitution and by-laws of the Idaho State Medical Association. The following officers were elected: president, Dr. Joseph N. Davis, Kimberly; vice president, Dr. John F. Schmershall, Jerome; secretary-treasurer, Dr. A. Henry Dunn, Twin Falls, and councilors, Drs. John F. Coughlin, Twin Falls; John M. Minter, Burley, and Edgar L. Simonton, Wendell. The first regular meeting of the association will be held July 13 at Shoshone.

ILLINOIS

Hospital Addition Opened.—In honor of the opening of the addition to St. Anthony's Hospital, Rockford, a dinner was given to the medical staff, June 3. Addresses were made by Bishop Muldoon and Drs. Clifford U. Collins, Peoria, and George P. Gill, Rockford, the first intern at the hospital, and others.

Personal.—Dr. Darwin Kirby, Champaign, was elected president and Dr. Horatio W. Miller, Urbana, secretary of the Twin City Clinical Society, at its meeting in Champaign, June 1.——Dr. Melvin L. Hole has been appointed local surgeon for the Illinois Traction System at Danville.——Dr. Herman P. Harder has been elected president, and Dr. Albert H. Roler, secretary of the Evanston Tuberculosis Institute. ——Dr. William F. Bowman, Fishhook, had a narrow escape from drowning while attempting to ford a flooded creek in Brown County. His buggy was overturned and he was swept down stream, but managed to grasp some willow boughs and so remained until assistance arrived.——Dr. Horace B. Dunn, Rockford, has recovered from his recent illness and resumed practice.——Dr. David S. Ray, Cuba, has started on a trip to the Panama Canal and California.

Chicago

Institute of Medicine Started.—The Institute of Medicine of Chicago, a professional society with scientific purposes, was incorporated, June 9, by Drs. Frank Billings, Ludvig Hektoen and William Allen Pusey.

Personal.—Dr. Caroline Hedger returned to Chicago, June 11, after seven months spent in caring for war-stricken Belgians in Europe.——Dr. Joseph Zeisler was elected president, and Dr. Charles P. Caldwell, treasurer, of the Physicians Club of Chicago, at a meeting of the directors held June 10.——Dr. Willoughby Walling was run over by a wagon and seriously injured, June 8.

Local Red Cross Chapter Reinstalled.—The Chicago chapter of the American Red Cross, which was active in Chicago several years ago, was reinstalled June 18, after a reception given to Miss Mabel T. Boardman, Washington, D. C., chairman of the executive committee, and Major-General William C. Gorgas, Surgeon-General, U. S. Army, and chairman of the Red Cross relief board. The reception, which was held at the Blackstone Theater, was given under the auspices of the municipality, the Chicago Association of Commerce, the Chicago Woman's Club, Chicago Medical Society and other civic and commercial organizations.

INDIANA

National Guard Changes.—Major Edson K. Westhafer, Newcastle, has been placed on the retired list.——Major Larue D. Carter, Indianapolis, has been appointed chief surgeon of the state.——Captain Frank W. Foxworthy, Indianapolis, has been placed in charge of Field Hospital No. 1, and ordered up for examination for his majority.——Dr. Edward G. Kyte, Seymour, has applied for examination to the Medical Corps and has been commissioned as first lieutenant.

Personal.—Dr. William F. Willien, Terre Haute, has been appointed secretary of the local board of health in place of Dr. Frank A. Tabor.——Dr. Francis O. Dorsey, Indianapolis, who has been seriously ill at the Methodist Hospital in that city, is reported to be improving.——Dr. George F. Keiper, Lafayette, has been appointed a school trustee of Lafayette.——Dr. James P. Orr, Lebanon, is reported to be seriously ill.

Tribute to Old Physician.—A commemorative dinner was given at the Arlington Hotel, Richmond, June 4, by the medical profession of the Sixth District and other friends to Dr. T. Henry Davis, president and for twenty years a member of the State Board of Health, who for nearly half a century has been a practitioner of Richmond. Dr. Louis F. Ross officiated as toastmaster, Dr. John N. Hurty spoke on "Dr. Davis and the State Board of Health"; Mr. William Dudley Foulke on "The Past and Future of Medicine"; Mr. George H. Knollenberg on "Doctor and Patient"; Hon. D. W. Comstock on "Dr. Davis as a Friend and Citizen"; Dr. D. W. Stevenson on "Dr. Davis and the Profession," and Dr. D. H. Dougan on "The Old Days." Dr. Davis responded, taking for his subject, "Yesterday, To-day and To-morrow." Dr. Davis was presented with a sketch of himself by Henry Mosler and the suggestion was made that the sketch be hung in the high school art gallery or in the city building.

MARYLAND

Flint Club Meeting.—The Flint Club of Baltimore held its three hundred and forty-eighth meeting, June 3. The club was organized twenty-nine years ago and was named in honor of Dr. Austin Flint. The club is a close corporation with a membership of twenty-five and only one elective officer, the secretary and treasurer, who is now Dr. William Caspari. The presiding officer is selected at each meeting.

Alumni Election.—The annual meeting of the Alumni Association of the University of Maryland Medical School, was held May 31, Dr. G. Lane Taneyhill, presiding. The following officers were elected: president, Dr. Albert H. Carroll; vice presidents, Drs. William E. Wiegand, J. C. Clark and George C. Lockard; recording secretary, Dr. Henry O. Reik; assistant recording secretary, Dr. Howard W. Jones; and corresponding secretary, Dr. John I. Pennington.

State Aid for Maryland State University.—At a meeting of the regents of the Maryland State University, June 10, the merger of the Maryland University School of Medicine and the College of Physicians and Surgeons was discussed. The principal business of the meeting was to authorize the treasurer of the university to accept the appropriation made by the legislature for the advancement of medical education. This appropriation is for $15,000 for 1914 and also 1915, together with $5,000 for each year for administrative purposes. The bulk of the total appropriation of $40,000 will be available in October. One half of it is available now.

Personal.—Dr. William S. Thayer, professor of clinical medicine at the Johns Hopkins Medical School, who was operated on recently for appendicitis, has left the hospital. Dr. Thayer has been nominated for one of the five vacancies of the board of overseers of Harvard University. He is one of the ten men nominated by a postcard ballot and stands fourth on the list.——Dr. William Lee Smith, Riderwood, who has been under treatment at the Johns Hopkins Hospital, is much improved and is expected to leave the hospital early in the week.——Dr. Joseph C. Bloodgood, Baltimore, has left for a ten-day trip to Minneapolis and other points in the West.——Dr. Thomas S. Cullen, who was operated on at Johns Hopkins Hospital, May 29, for the removal of gallstones, is reported to be making satisfactory progress toward recovery.

Psychopathic Building Opened.—The John Hubner Psychopathic Building of the Springfield State Hospital, Sykesville, was dedicated June 9. It is a three-story and basement brick structure in the form of a Maltese cross, equipped with laboratories, operating rooms, hydraulic department, continuous baths and many other necessary departments. One wing of the building will be devoted to administration offices. The building was erected at a cost of about $125,000 and is

for the care of acute cases of mental disease. The speakers on this occasion were: Dr. Elmer E. Southard, Cambridge, director of the Boston Psychopathic Hospital; Dr. Hugh H. Young, Baltimore, president of the Maryland State Lunacy Commission; Dr. Henry M. Hurd, Baltimore; Dr. Lewellys F. Barker, Baltimore, and Dr. Edward N. Brush, Towson, president of the American Medico-Psychological Association. In appreciation of his twenty years continuous service as a member of the board of managers, Mr. John Hubner, for whom the building is named, was presented with a loving cup.

MASSACHUSETTS

Creel Declines Health Commissionership.—P. A. Surg. Richard H. Creel, U. S. P. H. S., has been obliged to decline the position offered him as health commissioner of Boston on account of his health which has been impaired by long and trying years of service in the tropics.

Amendment to Practice Act.—A letter from Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, states that the Massachusetts Legislature, in the session just closed, passed an amendment to the medical practice act, which requires that all applicants for registration as physicians in the state must furnish to the licensing board satisfactory proof that they have received the degree of doctor of medicine, or its equivalent, from a legally chartered medical school.

Changes in State Hospitals.—Drs. Willis W. Gleason and Mark Meisner have resigned from the Westboro State Hospital.——Dr. John M. Thompson, Boston, has resigned from the staff of the Foxboro State Hospital.——Dr. James F. McFadden, Foxboro, has resigned from the Psychopathic State Hospital to accept a position in the Foxboro State Hospital.——Dr. Geneva Tryon, Cambridge, Mass., has been appointed assistant physician at the Boston State Hospital for six months.——Dr. Egbert W. Fell, Boston, has been appointed first assistant physician in the psychopathic department of the Boston State Hospital for one month.

Testimonial to Dr. Theobald Smith.—A complimentary dinner was given at the Harvard Club June 2 by about 200 friends and associates to Dr. Theobald Smith, Boston, for twenty years Fabyan professor in Harvard Medical School, who is soon to take charge of the department of animal pathology in the Rockefeller Institute. President A. Lawrence Lowell of Harvard University presided and addresses were made by Drs. Frederick C. Shattuck, Boston; William S. Thayer, Baltimore; Simon Flexner, New York City; former president C. W. Eliot, Drs. William H. Welch, Baltimore; Edward H. Bradford, Boston and Dr. Theobald Smith, Boston.

Neurosyphilis Discussed.—Under the auspices of the trustees of the Boston State Hospital, a symposium on "Neurosyphilis, Medical and Social Progress," was held at the Psychopathic Hospital, Fenwood Road, May 27. The subject was divided into social service methods and results, including methods of investigation, the question of enlightenment of members of the family and patients, family pathographies in respect to syphilis and the economic aspect of the problem. Under the head of clinical diagnosis were considered the question of latent neurosyphilis and paresis sine paresi, types of neurosyphilis and cerebrospinal fluid studies. The third portion of the program devoted to postmortem studies took up the convolutional type in paretics and histologic studies.

Boston Quarantine Transferred.—Surg. Samuel B. Grubbs, U. S. P. H. S., arrived in Boston May 28 and reported to the mayor on the following day. In accordance with an agreement between the city and the federal governments, Surgeon Grubbs assumed charge of the quarantine station at Gallup's Island, June 1. The agreement provides that the federal government shall hold the lease of the station for one year at an annual rental of $1 pending the agreement as to the price for which the station shall be sold by the city; providing also that the federal government shall take over the city employees now in the quarantine service. This will result in Dr. Francis X. Crawford, the present port physician, continuing in service under the new quarantine officer. Dr. Grubbs will reside in Boston and will have his office at the Immigration Station, Long Wharf.

Alumni Meetings.—At the triennial meeting of the Harvard Alumni Association held May 20 Dr. Samuel B. Woodward, Worcester, presided and addresses were made by Gen. Leonard Wood, U. S. Army and others.——The annual meeting and banquet of Tuft's Medical School Alumni Association, Boston, was held May 20 under the presidency of Dr. Herbert A. Donnell, Medford. After the dinner President Herman C. Bumpus, Dr. Charles F. Painter, Boston, dean of the medical school and Prof. Charles D. Knowlton, Boston, delivered addresses and the following officers were elected: president, Dr. James F. Coupal; vice presidents, Drs. Isador H. Coriat, Emma J. Wagner, West Somerville, Sarah E. Coppinger and William H. Greene; secretary, Dr. Andrew P. Cornwall; assistant secretary, Dr. Edith M. Brooks; and treasurer, Dr. Russell B. Sprague, all of Boston.

Personal.—Dr. J. Herbert Young, Newton, has been appointed medical director of the Boston Milk and Baby Hygiene Association, succeeding Dr. Arthur A. Howard, Boston.——Dr. Ernest O. Weinert, Boston, has been recalled to Italy for war duty and sailed June 6.——Dr. William C. Hanson, Boston, has been removed from the position of director of records and publicity for the State Health Commission by Health Commissioner Allan J. McLaughlin and the division has been abolished.——Dr. Thomas F. Harrington, Boston, has been elected deputy state health commissioner by the State Board of Labor and Industry.——Dr. Richard Pierson Strong, Boston, has been elected professor of tropical medicine in the Harvard Medical School, a position for which he had previously received the nomination of the corporation.——Drs. David L. Edsall, Boston and Milton, and Joseph E. Lamoureux, Lowell, have been reappointed members of the Public Health Council of the state.——Dr. Franklin Dexter, Boston, has been appointed director of scholarships in the Harvard medical and dental schools.

MISSOURI

Personal.—Arthur M. Alden, instructor in bacteriology in the St. Louis University, has been appointed pathologist to the Santo Tomas Hospital, Panama City, Panama, and sails from New York, next week.——Dr. Fabian L. Pratt, Kansas City, sailed from New York May 29, to enter the French Medical Service.——Dr. Joseph M. Yater, Nevada, has been appointed a member of the board of regents of the State Normal School, Springfield.——Dr. James Stewart, St. Louis, is making a good recovery after an operation performed May 3, at the Jewish Hospital.

State Health Board Upheld.—The Supreme Court of Missouri rendered a decision June 1 upholding the right of the State Board of Health to revoke licenses of physicians who write prescriptions for liquor in "dry" counties. The case before the court was that of Dr. A. M. Conway, Columbus, who is reported to have written 778 prescriptions for liquor during February and March, 1910, and is said to have received twenty-five cents each for these prescriptions, which contain no ingredients except whisky. This case was tried in the Boone County Court and resulted in conviction and a short time later the State Board of Health revoked the license of Dr. Conway and an appeal was taken to the Supreme Court with the result as stated above.

Estate Goes to Hospital.—The late Mr. George D. Barnard, donor and beneficiary of the Barnard Free Skin and Cancer Hospital of St. Louis, left an estate of $2,000,000 well invested in first-class business securities. After annuities to his widow and various institutions amounting to about $50,000 are paid, the residue of the income goes to the Barnard Free Skin and Cancer Hospital. After the expiration of the annuities, through the death of the various legatees, this institution will receive the income from the whole estate. About $16,000 a year, consisting of small sums to various local institutions, will be a perpetual charge against the estate. The Barnard Free Skin and Cancer Hospital has had up to this time an income of over $30,000. This, together with that from the Barnard estate, will enable the institution to extend its investigations along much broader lines than it has been possible to pursue in the past.

Health Tests for Waiters and Cooks.—The Medical Society of the City Hospital Alumni of St. Louis, has adopted resolutions setting forth that on account of the prevalence of communicable diseases among employees in kitchen and dining room service in St. Louis, every employee found to be diseased should be excluded from service; that the Division of Health should ascertain the presence of any disease of any employee in eating places; that the director of the Department of Public Health should consider the public needs in this direction and secure the enactment of the appropriate legislation to give authority to the Division of Health to initiate inquiries and conduct examinations; that all kitchen and dining room help, before employment therein, shall be required to undergo a physical examina-

tion under the direction of the Department of Health and that no one failing to secure a clean bill of health, shall be eligible to employment. These resolutions were placed in the hands of the committee on municipal affairs and public health, with instructions to arrange for a conference with city officials touching the details of the proposed resolutions.

NEW YORK

Hospital Celebrates Anniversary.—St. John's Hospital, Long Island City, recently celebrated its twenty-fourth anniversary, on which occasion Dr. James J. Walsh, New York City, delivered the address.

Child Welfare Day.—The State Department of Health has designated Sunday, June 20, as Child Welfare Day. Pastors of all denominations have been asked to cooperate by preaching or giving short talks on child welfare and the prevention of infant mortality.

Personal.—Syracuse University conferred the degree of LL.D. on Dr. Henry L. Elsner, Syracuse, June 9.——Dr. C. Floyd Haviland, first assistant physician at the Kings Park State Hospital, Long Island, has been appointed superintendent of the Connecticut State Hospital, Middletown, vice Dr. Henry S. Noble, deceased.

Tuberculosis Camp Opened.—The eighth season of the open-air camp of the Buffalo Association for the Relief and Control of Tuberculosis opened June 1. Only ambulant cases are accepted at this camp. The camp will accommodate about sixty full-time patients and many additional day patients. Dr. Francis J. Lennon continues as medical director and is assisted by Dr. John G. Stowe.

Features of Alumni Meeting.—At the annual banquet of the Alumni Association of the medical department of the University of Buffalo, June 3, recognition was given to Dr. Peter W. Van Peyma, Buffalo, of the class of '72, teacher and clinical professor of obstetrics in the university for thirty years and the representative of the Medical Alumni on the University Council, who retires this year. The graduating class presented a portrait of Dr. Van Peyma to the university to be hung in the college library. At the meeting steps were taken for the establishment of an alumni fund to be used for the advancement of teaching and research work in the institution. Among the many interesting features of the meeting were the surgical diagnostic clinic held by Dr. George W. Crile, Cleveland, and the alumni oration on "Cerebral Localization with Especial Reference to the General Practitioner," by Dr. William House, Portland, Ore.

New York City

Health Department Investigating Wall Street.—Dr. Sigismund S. Goldwater, Commissioner of Health, has issued an order to the sanitary bureau and the division of occupational diseases to investigate sanitary conditions in the office buildings below Fulton Street. The inspection will be similar to that undertaken in factories and sweatshops throughout the city.

Drug Victims Fill City Prisons.—At a recent conference on crime and environment, Dr. Katherine B. Davis, Commissioner of Corrections, stated that on March 1, 1914, there were 4,647 persons in the correctional institutions of New York City, while on March 1, 1915, there were approximately 7,500, an increase of almost 50 per cent. Dr. Davis attributes this increase to the drug crusades of the past fifteen months which have increased the number of commitments of users of habit-forming drugs as well as of persons convicted of trafficking in narcotics.

Patients to Pay If Able.—The city has decided to operate the Municipal Tuberculosis Sanatorium at Otisville on Shawangunk Mountain, on a new plan. Heretofore, it has been the practice to receive all regularly admitted persons as free patients, but from this time on, patients admitted to the institution will be put on the same basis as those who seek to receive treatment in other city hospitals. Inquiry will be made as to their financial ability to make payment and those who are found to be able to pay, will be given the opportunity. Three uniform rates have been decided on, $3.50, $7.00 and $10.50 a week. Patients unable to pay and otherwise suitable as cases for admittance, will be admitted and treated as before, free of charge.

To War Against Strong Drink.—Dr. Sigismund S. Goldwater has declared officially that he is about to initiate a campaign against the use of spirituous liquors in New York City. He has sent a mandatory letter to the Advisory Council of the Department of Health asking for the immediate organization of a committee to put such a campaign in force. Dr. Goldwater acknowledges that he has undertaken a "big job" but contends that the regulation of the liquor traffic is a duty of the Health Department since such a large proportion of the poverty, crime and sickness of the city can be traced directly to the influence of alcohol. It is stated that the campaign will be one that will appeal to popular fancy and will have as its slogan "Get on the water wagon."

NORTH CAROLINA

Dinner to Chicago Physician.—Dr. Noble S. Heaney, Chicago, was given a complimentary dinner by the Buncombe County Medical Society at Asheville, May 21.

Correction.—Dr. John A. Williams, Greensboro, announces that the report in THE JOURNAL that he had a stroke of paralysis in New York City, is incorrect. Dr. Williams reports that he is in good health.

State Hospital Report.—The State Hospital for the Insane, Morgantown, reports a residence population of 1,404. The opening of the new colony building last month gave additional room and sixty-two patients have already been admitted to the building.

Institution for Sick Babies.—A donor who does not desire his name to be made public, has tendered $20,000 to the city of Wilmington, to provide an institution for the care of infants whose home conditions are not sufficient for their care when ill. The donor announces that the fund will be available as soon as a sufficient amount to guarantee maintenance charges is secured.

Dean Confers Degrees in Virginia.—Dr. John C. Montgomery, dean of the North Carolina Medical College, Charlotte, attended the recent commencement of the Medical College of Virginia, Richmond, to confer the degrees on the students of the North Carolina Medical College who matriculated before the amalgamation of the institution with the Medical College of Virginia.

Canvass of Derelict Counties.—Dr. J. R. Gordon, chief of the Bureau of Vital Statistics of the State Board of Health, has made a special canvass of certain derelict counties of the state in order to secure more efficient and complete reports of births and deaths. The health department is not assured that all births are being reported while the death records are believed to be fairly correct.

Personal.—Dr. Lewis B. McBrayer, superintendent of the State Sanatorium for Tuberculosis, has been appointed postmaster of Sanitarium.——Dr. Claude O. Abernethy, Raleigh, has returned after a period of postgraduate study in New York City.——Dr. William K. Reid has been elected city physician of Charlotte, and Dr. Eugene P. Gray, city physician of Winston-Salem.——Dr. Carl V. Reynolds has been reelected health officer of Asheville.

PENNSYLVANIA

Optometry Bill Vetoed.—On June 3, Governor Brumbaugh vetoed the House bill to create a separate bureau for licensing optometrists, to practice in Pennsylvania. A similar bill was vetoed earlier in the session and with certain amendments it was again passed by the assembly.

State Health Bureau Wins Medal.—On June 10, recorder of deeds Ernest L. Tustin, a member of the Pennsylvania commission to the Panama-Pacific Exposition, announced that the grand prize for the best health department had been awarded to Pennsylvania with personal praise for Dr. Samuel D. Dixon, state commissioner of health.

Philadelphia

Resignation of Assistant Director.—Alexander M. Wilson, assistant director of the Department of Health and Charities, has resigned, as he has been appointed director of investigations of the department of charities in New York City, a position paying $4,000 a year, the same salary he has been receiving here.

Donation of Surgical Instruments Requested.—The French Relief Committee of Philadelphia announces that surgical instruments are urgently needed in the smaller hospitals in France. An appeal is made to surgeons throughout the United States to donate for this purpose such instruments as they can spare, to be forwarded to France. Such instruments may be sent to the French Relief Committee, 708 Sansom Street, Philadelphia.

Personal.—Dr. Samuel McClary, III, has been elected assistant professor of surgery in the Medico-Chirurgical

College of Philadelphia.——Dr. R. Tait McKenzie, director of physical education at the University of Pennsylvania, sailed for London, May 29, where he will take charge of a new physical examination department, established by the British government.——The board of city trusts, on June 9, appointed Dr. Paul B. Cassidy and Dr. Oscar G. Flegler, respectively, as first and second clinical assistants and Dr. Harry Judge as resident to the Wills' Eye Hospital.——Dr. Ella B. Everitt has been elected president of Wilson College for Women at Chambersburg.

To Reduce Infant Mortality.—Greater efforts than ever are being made this summer to reduce infant mortality. June 5, Dr. Ziegler, director of public health and charities, announced the appointment of fifteen nurses to the division of child hygiene. The full number of nurses for the work among children will be increased to forty for the work during July. Last summer there were about eight nurses engaged in this work. The nurses are to be paid out of an appropriation of $7,500. They will make a house to house visit which will bring home to patients by actual contact the teaching and necessity for scientifically safeguarding the health of the children.

Surgical Unit Sails.—Dr. J. William White and the University of Pennsylvania medical unit, which is to take charge of an entire floor of the American Ambulance Hospital at Neuilly-sur-Seine, during July, August and September, sailed from New York, June 12, on the American liner, *St. Louis*. Dr. James B. Hutchison will be the chief surgeon, and the party numbers fourteen, including four nurses. Dr. Thomas G. Aller is the dental surgeon and Dr. David M. Davis of Johns Hopkins University will have charge of the bacteriologic research. At least $10,000 will be required to maintain the university unit, $7,000 of which has already been collected. No member of the party will receive a salary and most of the physicians are paying their expenses. Six dental surgeons who were unable to secure passage on the *St. Louis* will sail for France on Saturday, June 19, and will join the contingent at the American Ambulance Hospital.

TENNESSEE

Appropriation for Tuberculosis Hospital.—The house of representatives on May 7 passed the bill appropriating $50,000 for a state hospital for tuberculosis.

Free Dispensary for Chattanooga.—At a meeting held in Chattanooga, May 10, final plans for the establishment of a free clinic or dispensary were developed. The amount required for the establishment of the clinic will be about $2,500. The work is expected to be affiliated with that of the Associated Charities and Erlanger Hospital.

Witherspoon Club Banquet.—The annual banquet of the Witherspoon Club Society composed of the leading members of the senior class of the medical department of Vanderbilt University, Nashville, was held May 8. Dr. John A. Witherspoon, Nashville, in whose honor the club was named, was present and delivered an address.

Board of Preliminary Examiners.—Legislation recently obtained provides for a board of preliminary examiners to examine all applicants for license to practice the healing art as to their literary qualifications. Unless candidates are found to be duly qualified, they will not be permitted to take the examination for license to practice. The board consists of three members, and those appointed, respectively, for six, four and two years, are Profs. I. S. Hudson, Nashville; C. C. English, Bristol, and J. W. S. Rhea, Memphis. All members thereafter will be appointed to serve for a term of six years.

Personal.—Dr. Leonard W. Edwards, Nashville, has been appointed physician to the Nashville Penitentiary.——Dr. J. A. B. Ward, Clarksville, was seriously injured by the overturning of his automobile, recently.——Dr. Isadore Lewinthal has been reelected president of the State Board of Charities.——As the result of a competitive examination, Dr. Lucius P. Brown, state food and drug commissioner of Tennessee, has been appointed director of the bureau of inspection of the Department of Health of New York.——Dr. James K. Goodloe has been appointed city prescriptionist of Nashville, succeeding the late Dr. Peter Hager.——Dr. T. P. Holman, Fayetteville, is reported to be critically ill as the result of a cerebral hemorrhage.——Dr. John D. Brewer, Newbern; Reese W. Patterson, Knoxville, and Young W. Haley, Nashville, have been appointed members of the State Board of Examiners for Nurses. There are also two nurses on the board.

TEXAS

Medical College Closed.—It is reported that the Southern Methodist University of Dallas will not reopen its medical department next fall owing to the lack of adequate finances.

Medical Building.—A building is to be erected in Dallas especially for the use of physicians by Drs. Raleigh W. Baird, Harold M. Doolittle, Alfred I. Folsom and Robert B. McBride, all of Dallas.

New Hospital.—The new hospital for the Masonic fraternity near Arlington is completed and will be ready for occupancy this month. The institution will accommodate about thirty patients and will cost, when completed, about $20,000.

Personal.—Dr. Byron F. Kingsley, San Antonio, has been reelected president and Dr. George W. Sims, San Antonio, has been elected vice president of the Bexar County Humane Society.—Dr. Marvin P. Stone, Dallas, has been appointed surgeon-in-chief of the Masonic Hospital at the Home for Aged Masons, Arlington.

Quarantine Station Moved.—The office of Surg. Robert L. Wilson, surgeon in charge of the United States Quarantine Station at Galveston, has been moved from the old postoffice building to the new building on Pelican Spit. The new buildings are practically completed and will be formally opened about July 1.

Appropriation for State Board.—The House of Representatives has passed an appropriation for the State Board of Health carrying a total of $141,840.00 for the biennium. An amendment was also adopted adding $4,000 a year to this appropriation for the establishment of a course in hygiene, sanitation and improvement of public health in public schools of the state, under the direction of the State Board of Health.

Federal Control of Quarantine.—Colonel Walter Gresham of the Deep Water Committee of the Galveson Commercial Association laid before the governor and the finance committees of the legislature a proposition to vest the authority of port quarantine in the federal government instead of the state. This, it is alleged, will mean a saving to Galveston shipping of from $15,000 to $20,000 a year and a more thorough and efficient service in quarantine administration.

Addition to Teaching Hospital.—An official report states that a woman's addition to the John Sealy Hospital has been erected at a cost of $125,000, the money being donated by Mrs. R. Waverly Smith and her brother, Mr. John Sealy of Galveston and that a new nurses' home, costing $90,000 and accommodating fifty-five nurses has been erected by the University of Texas at Galveston, in close proximity to the John Sealy Hospital. This is the teaching hospital of the Department of Medicine of the University of Texas.

Embargo Lifted.—A proclamation was issued by the governor May 28 raising the embargo on cattle from all except the states of Connecticut, Delaware, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Virginia, West Virginia, Wisconsin and the counties of Butler, Cowley, Sedgwick and Sumner in Kansas. The proclamation also provides twenty-two points of entry at which cattle may be shipped from the border of Mexico into the United States, under stated restrictions.

WASHINGTON

New Hospital.—At Walla Walla and Waitsburg, April 21, $12,702 was subscribed for the new St. Mary's Hospital, Walla Walla. The Sisters of Providence have already $62,000 available and only a little more than $10,000 is now required before the work on the buildings can be commenced.

CANADA

Ambulance Donated.—Messrs. A. Davis and Son, Kingston, Ont., have donated a motor ambulance to Queen's Stationary Hospital.

Nurses for Convalescent Homes.—The Convalescent Homes being established throughout Canada to attend to wounded and invalid soldiers are to have the services of the Victorian Order of Nurses.

For Overseas Service.—The following names are mentioned in connection with the Base Hospital for overseas service, donated by the Ontario government: Drs. Herbert J. Hamilton, Rowland B. Orr, Herbert A. Bruce and Harry B.

Anderson. These are all well-known practitioners in Toronto, and if finally appointed will be given the rank of lieutenant-colonel.

Reciprocity for Druggists.—The Ontario Pharmaceutical Association have almost completed negotiations for reciprocity with the Pharmaceutical Association of Australia. A deputation of druggists representing the whole Dominion is to wait on the government of Ottawa in recognition of the pharmacists who are at the front in the military training camps. The druggists want commissions for their members the same as for dentists and veterinary surgeons.

Medical Roster for Overseas Duty.—The Canadian Relief Committee in Toronto have endorsed the proposition to form a roster of medical men for overseas duty. The suggestion is to accept in turn, as required, a limited number of members of the medical profession for six months' duty. As hundreds are anxious to take part in this particular work, it is felt that some arrangement could be made whereby engagements for indefinite periods would be done away with.

Will Protect Practices of Physicians at Front.—At the thirty-fifth annual meeting of the Ontario Medical Association a resolution was adopted expressing the appreciation of the association that so many of its members have responded to the call of the Empire or have entered on active service, and expressing the intention of the association to look after the work of these physicians during their absence and to see that their practices are retained and restored to them on their return.

Personal.—Dr. Hibbert W. Hill, who has been on duty with the State Board of Health of Minnesota for some time, has been renamed as director of the Institute of Public Health of London, Ont.——Dr. David H. Dowsley, formerly of Ottawa, is believed to have been lost on the *Lusitania*.——Dr. Angus W. McPherson, Peterboro, who was recently elected president of the Ontario Association of Health Officers, is at present in England on overseas duty.——Dr. James D. MacDonald, Huntsville, Ont., has been chosen liberal candidate for the constituency of Muskoka, Ont.

GENERAL

Louisiana Health Car Goes to San Francisco.—The educational hygiene exhibit cars of the Louisiana State Board of Health will be taken to San Francisco. The cars leave New Orleans on the morning of June 16, and are scheduled to arrive at San Francisco some time on the 20th. An opportunity is, therefore, afforded to those who attend the meeting to see this widely known exhibit.

Army Medical School Graduation.—At the annual commencement of the United States Army Medical School, Washington, held in the auditorium of the school, May 31, thirteen graduates received their diplomas from Assistant Secretary of War Breckenridge. The Hoff memorial medal was awarded to Lieut. Harry D. Offut, M. R. C., U. S. A., Maryland, by Col. John Van R. Hoff, M. C., U. S. A., Washington (retired), and the Sternberg medal was awarded Lieut. Raymond E. Scott of Washington. The principal address was made by Lieut. Reynold Webb Wilcox, M. R. C., U. S. A., New York.

Bequests and Donations.—The following bequests and donations have recently been announced:

Sibley Memorial Hospital, Washington, D. C.; Benjamin A. Haywood Memorial Dispensary and Pathological Laboratories, donation by Mrs. Elizabeth E. Haywood, Sheran.

Jefferson Medical College, Philadelphia, for the endowment fund, $100,000, subject to the raising of an equal amount by the alumni of the institution; Home of the Merciful Saviour for Crippled Children, Philadelphia, $1,000, and a contingent bequest of one-half of the residue of the estate, the principal to revert in equal parts to the University and Episcopal hospitals, by the will of Josephine Lewis.

Episcopal and St. Timothy's hospitals, Philadelphia, each $1,000, by the will of Dr. John L. Brumley.

Methodist Hospital, Philadelphia, $1,000 by the will of Martha Moore.

St. Timothy's Hospital, Philadelphia, a contingent bequest by the will of Charlotte M. King.

Conference on Race Betterment.—The Second National Conference on Race Betterment will be held at San Francisco from August 5 to 8. During the first week in August the American Genetic Association, American Association for the Advancement of Science, American Anthropological Association, American Association for the Study of Feeble Minded and the American Social Hygiene Association will hold congress in and near San Francisco. It is the intention of the Conference on Race Betterment to cooperate as far as possible with the above-named organizations. The headquarters of this conference will be on the exposition grounds, and the sessions for the greater part will be held at the exposition.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending June 12, 1915, lists the following contributions:

New England Hospital Medical Society, Boston, Mass.	$ 30.00
Aux Plaines Branch of Chicago Medical Society, Maywood Ill.	44.00
Vigo County Medical Society, Terre Haute, Ind.	25.00
Dr. Jacob Schwinn, Wheeling, W. Va.	10.00
Dr. John Bryant, Boston, Mass.	10.00
Drs. Robert J. and John L. Sagerson, Johnstown, Pa.	10.00
Dr. Catherine H. Travis, New Britain, Conn.	2.00
Dr. George B. Lake, Manila, P. I.	2.00
Dr. M. J. Kenefick, Algona, Ia.	10.00
Dr. E. W. Link, Palestine, Tex. (Second contribution)	10.00
Receipts for the week ending June 12	$ 153.00
Previously reported receipts	7,159.00
Total receipts	$7,312.00
Disbursements for the week ending June 12:	
140 standard boxes of food at $2.28	$ 319.20
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
1,274 standard boxes of food at 2.30	2,930.20
213 standard boxes of food at 2.28	485.64
Total disbursements	7,310.04
Balance	$ 1.96

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Subscription Faker Arrested.—The Periodical Publishers' Association has succeeded in arresting one Floyd Maxwell, who, it is said, has for some time been soliciting from physicians subscriptions to such magazines as the Literary Digest, and the Current Opinion, offering medical books as premiums. THE JOURNAL has on several occasions published warnings against a scheme of this nature, especially as several physicians have notified THE JOURNAL that they had been victimized. Those who have been caught by this man should send the evidence to the Chief of Police, Oshkosh, Wis., in which city Maxwell was arrested, to aid in prosecuting the case. The fact that this particular individual has been arrested should not, however, encourage physicians to relax their watchfulness. Such schemes are continually being foisted on physicians by various subscription fakers, and it is well to be very cautious of too bountiful offers.

Recent Regulations Under the Harrison Narcotic Law.—The following are recent regulations under the Harrison Narcotic Law considered editorially in this issue of THE JOURNAL, page 2070.

MEANING OF SECTION 6

. . . The question arises whether or not "prescriptions" come within the definition of "preparations" or "remedies," as given in the act. The word "preparations," as generally used and understood, means ready-made or prepared medicines and the word "remedies" means that which cures or is efficacious in a specific disease or diseases under all conditions, while the term "prescription" is the written directions or recipe of a physician for the compounding or preparing of a medicine and directions for its use to meet the existing conditions in the case of a particular patient.

It is, therefore, apparent that the exemptions in Section 6 of the Act as interpreted in Treasury Decision No. 2172, relating to "preparations and remedies" containing not more than the specified quantities of the drugs enumerated, do not apply to "prescriptions" written by registered physicians calling for any quantity of the narcotic drug, unless such "prescription" is written for a "preparation or remedy" prepared in accordance with the U. S. Pharmacopeia, National Formulary, or other formula, or for a "remedy or preparation" prepared under private or proprietary formula, carried in stock by a dealer, which may be dispensed without a "prescription."

Every "prescription" therefore, containing a narcotic drug in any quantity, with the exemptions noted, must have indicated thereon the name and address of the patient, the date, the name and address of the physician, and his registry number. Such "prescriptions" cannot be refilled and must be filed for a period of two years.

MAIL ORDERS

. . . The fact that registration is limited to certain named persons indicates that there must be a power of discrimination vested in collectors of internal revenue as to who shall be registered and from whom special tax may be received. Therefore, persons not legitimately engaged in the exercise of their trade or profession cannot legally register under the terms of this Act. For example, a party must be a legitimate producer, importer, manufacturer, seller, or distributor of the aforesaid drugs, and likewise a physician, dentist, or veterinary surgeon can register under this act and dispense these drugs "in the course of his professional practice only." It also follows from the express language of the act that such physician, dentist, or veterinary surgeon can prescribe such drugs when he "has been employed to prescribe for the particular patient receiving such drugs," and on whom he "shall personally attend in the course of his professional practice only," and such prescriptions must be made "in the legitimate practice of his profession," and then only when "employed to prescribe for the particular person receiving such drugs."

The above quotations from the law indicate the correct limitation on the professional prescription or distribution of said drugs by persons whether registered or not.

It is apparent from the foregoing that the duties of collectors and other internal revenue officers do not end, under the provisions of

this act, with simple registration. If parties secure registration through misrepresentation or fraud, such registration is null and void and does not protect them from prosecution for the illegal use of these drugs, and it is the duty of collectors and other internal revenue officers when such cases are discovered to investigate the same, and where the law has been violated in line with the foregoing, to seize and proceed to forfeit the prohibited drugs illegally in possession of such parties, and recommend such persons to the district attorney for indictment and prosecution.

The foregoing has special application to those persons who, registering as physicians, prescribe or distribute narcotic drugs or preparations on receipt of mail orders received from so-called patients, or who, under the laws of the state or under municipal regulations, are not permitted to practice medicine.

ISSUING NUMBERS

. . . . In issuing registry numbers and special tax stamps under . . . . Harrison Narcotic Law, collectors of internal revenue will require persons making applications to state, under oath, in the blank space on Form 678, or if not sufficient space on the line for that purpose it should be in the form of an affidavit attached to the application on this form, that they will engage in administering, dispensing, or prescribing narcotic drugs only in the legitimate practice of medicine, dentistry, or veterinary surgery; or will engage in the business of producing, importing, manufacturing, compounding, dealing in, dispensing, selling, or distributing, as the case may be, only those narcotic drugs for which they are duly qualified by law, that is, "The undersigned is now engaged or on and after ————will engage in the legitimate practice of medicine (dentistry, or veterinary surgery), and is, or are, duly authorized by law to administer, dispense, or prescribe narcotic drugs," or "The undersigned is now engaged, or on and after ———— will engage in the lwful business of producing (importing, manufacturing, compounding, dealing in, dispensing, selling, or distributing) narcotic drugs."

FOREIGN

Plague Declining in Dutch East Indies.—According to the *Nederlandsch Tijdschrift*, the number of recorded cases of plague in Java during a recent eleven-day period was 119, with 103 deaths. During the corresponding period last year there were 694 cases, with 624 deaths.

Lectures on Medicolegal Aspects of Industrial Accidents.—The *Policlinico* mentions that Professor Bernacchi, consultant to the Cassa Nazionale infortuni sul lavoro, has been appointed lecturer at the University of Rome on industrial accidents. The official title of the course is "Unfortunistica medicolegale."

Antifly Campaign in Holland.—The Amsterdam Board of Health is busily distributing small illustrated pamphlets to educate the public in the dangers from the presence of flies and in means to exterminate them. The motto for the antifly campaign is repeated again and again; "No filth, no flies," *Waar geen vuil is, zijn geen vliegen.*

Italian Society for Experimental Phonetics.—An organization has recently been founded for this purpose, and one meeting has already been held at Rome. The membership includes physicians and scientists especially interested in the throat, and teachers of singing. Ferreri and Bilancioni reported the results of much research on fatigue of the larynx, and Gradenigo the results of study of phonation and respiration in a young woman with an entirely healthy throat who had been tracheotomized by mistake. Ponzo of Turin exhibited a modification of the Marey drum which records the tempo as well.

Metchnikoff's Seventieth Birthday.—Our foreign exchanges now contain an occasional article with the subheading, "Dedicated to Elias Metchnikoff on the Occasion of his Seventieth Birthday, May 16, 1915." These articles had been prepared for an international *Festschrift*, which was to have been presented to him on that date, but the war broke up the plans for the volume and the contributions are being published separately in various neutral journals. He is a native of southern Russia but has had a laboratory at the Paris Pasteur Institute since its erection, over twenty-seven years ago. His discoveries in phagocytosis were made previously in Italy. Although he studied under German physicians, he never took a degree in medicine.

Deaths in the Profession Abroad.—J. Englisch, professor emeritus of surgery, especially surgery of the urinary apparatus, at the University of Vienna, aged 80. The list of his works on urologic subjects is a long one.——M. Landau, assistant at the Freiburg Institute of Pathology, but lately in charge of a military hospital at Vienna, aged 29.——J. De Bary, of Frankfort-on-the-Main, aged 75.——Among those who have fallen on the battle field are A. Zahn, assistant at the university medical clinic at Greifswald, aged 29, son of the Geneva pathologist, F. W. Zahn; H. Deetjen, co-worker in the Institute for Cancer Research at Heidelberg since 1908, aged 48. It is to him we owe most of our knowledge of the blood platelets, as he worked out methods for isolating and keeping alive the platelets and studying their connection with coagulation.

WAR NOTES

Insane Among Crews of Interned Vessels.—Among the 5,000 sailors on the interned German vessels in New York harbor twelve cases of insanity have been reported to the county medical authorities in Hoboken. Health Officer Dr. Joseph Stack says that 90 per cent. of the interned crews suffer from anemia and are undernourished.

From Vienna.—A letter from Vienna in the *Medizinische Klinik* states that the limelight of public attention is now focused on the louse. The lay press teems with articles and advertisements on extermination of vermin. The newly organized society for prophylaxis of epidemic diseases is conducting a vigorous campaign for compulsory vaccination, which the medical profession has been urging for years. The authorities are now being besieged on all hands to order that the populace must be vaccinated. The medical faculty of the university bases its urgent plea mainly on the analogy between conditions in Austria now and those in Prussia after the war of 1870. In the army in both countries vaccination was compulsory, but the populace in general was not vaccinated, and Prussia then had an epidemic of smallpox, with over 240,000 cases. Compulsory vaccination was then enforced and by 1874 smallpox had been banished from the land. Recent Vienna statistics show that 98 per cent. of the mortality from smallpox is among the unvaccinated or never revaccinated.

LONDON LETTER

LONDON, May 28, 1915.

The War

THE CONDITION OF SERBIA

From Valievo, in Serbia, typhus spread, being carried by soldiers returning to their homes and by travelers on the railway. In a few weeks the country had become a seething mass of misery and pestilence. The number of patients far exceeded the hospital accommodation. In the Nish hospital they lay three and four in a bed, while others lay on the floor and even under the beds. No medical service adequate to the conditions existed. Physicians and nurses and others bravely volunteered from Britain, France and America, and many of them succumbed to typhus. The work done by these devoted helpers is beyond all praise. One English woman, Mrs. Hardy, who came alone, took charge single-handed of a surgical hospital of about 500 patients, and with the help of one woman, a Serbian physician, turned it into a marvel of order and cleanliness. In February the British Army Medical Service sent out a sanitary department under Colonel Hunter. When they arrived they found that apart from the wounded there were 37,000 sick in the army, including 15,000 cases of fever, of which more than 8,000 were typhus and nearly 1,500 typhoid. It was difficult to ascertain precisely the condition of the civil population, but in Kraguievatz alone, a town of 20,000 inhabitants, there were 1,400 cases of typhus, and the number of deaths in three months had been 3,400, or thirty-four times the normal. By all indications, typhus and relapsing fever were increasing rapidly; there were rumors of plague, and an obvious danger of cholera, unless effective measures could be taken before the warm weather set in. To bring order and cleanliness into this chaos seemed beyond human powers. Colonel Hunter quickly grasped the fact that the first need was to break the lines of infection between the troops and the rest of the country. To effect this, three principal steps were taken. First, quarantine stations were established behind the lines; second, notice was given that all railway communication would be suspended for fifteen days; and third, all leave from the army was stopped, and all soldiers on leave were immediately recalled, so that there might be no danger of reinfecting the railway after the disinfection, which was to be carried out during the stoppage. The problem of typhus was comparatively simple, as that disease is spread by lice. Wholesale disinfection and cleansing were carried out. Wine barrels were fitted up as disinfectors and sent broadcast through the towns and villages. All the hospitals were thoroughly disinfected, and more beds and accommodation were provided as soon as possible. Notification of disease was enforced, and infectious patients were removed from their homes to hospitals, their houses being thoroughly cleansed, and their other inhabitants kept in isolation for fourteen days. Finally, it was laid down that no infectious patients should be discharged from hospital in less than four weeks. The sanitary staff went from place to place in a train specially fitted up with all necessary appliances, and containing sleeping accommodation for all on board. Inoculation

was largely resorted to, especially against cholera, which always loomed ahead as the last and worst possibility when the other plagues were exhausted. As the British mission foresaw, the conditions became worse before they began to improve, but when they did, the change was rapid beyond expectation. April 5 there were 8,198 cases of typhus in hospital; April 18, only 948. In the same period relapsing fever had declined from 7,693 to 4,861, and typhoid from 1,443 to 1,126.

A Physician's Fear of Premature Cremation

The fear of premature burial, though not widespread, is well known, and a society for the prevention of this contingency exists. The will of a physician, Dr. A. W. Orwin, at one time physician to the Central London Throat, Nose and Ear Hospital, displays a similar fear with regard to cremation, and the precautions which he directed to be taken are most elaborate: that "until it was ascertained that he was in fact dead, his nose and mouth were not to be covered nor his body confined in any shell or coffin; that on his apparent death his body should be kept in a well-warmed bed for thirty-six hours and then placed in a warm room, with the windows partially opened, and watched for twelve days and nights or until definite signs of decomposition have set in. During this period, the tests given in a pamphlet by Sir Benjamin Ward Richardson, 'The Signs and Proof of Death,' were to be applied, and a bell was to be attached to his wrist. When decomposition should have set in, a surgeon was to sever completely the spinal cord high up in the body, which was then to be cremated."

BERLIN LETTER

BERLIN, May 18, 1915.

Personal

Prof. Heinrich Fritsch died, May 14, at Hamburg, aged 71. He studied under Olshausen, took his medical degree at Halle, was called to Breslau in 1882 as director of the maternity, and in 1893 became professor of obstetrics at the University of Bonn and director of the university clinic for women. Among his various important contributions to obstetrics and gynecology are his studies of the displacements of the uterus and of the pathology of puerperal fever. His larger works include "Diseases of Women," "Obstetric Operations" and "Obstetrics from the Forensic Standpoint," some of which have passed through many editions. His last work was on "Therapeutic Technic in Gynecology" in the "Manual of Therapeutic Technic" published by Professor Schwalbe.

The medical faculty of the University of Heidelberg has awarded this year the Kussmaul medal and the money prize from the Kussmaul endowment to the surgeon, Professor Braun of Zwickau.

The War

VENEREAL DISEASES

As history has shown, there has always been a great increase in venereal diseases along with all wars, and it was evident to all that in the present war, also, the combating of venereal diseases would be one of the most important hygienic problems presented. Soon after the opening of the war, there was a lively discussion on the subject in medical literature. The national preventive organizations—in Germany the Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten—were among the first to call attention to the immense import of the whole matter and to insist on enlightenment and warning and to urge energetic measures for protection and prophylaxis. When nine months of the war had passed, April 18, the board of the German Prophylactic Society held a meeting in which was discussed what has been accomplished to date and what is still to be done in the future. It was the general conclusion that the measures for enlightenment now in vogue on different sides must be vigorously continued. The distribution of enlightening circulars must be continued, especially the one issued by this society in an edition of two millions, and its other warning publications must be widely distributed. In addition to these, the short warning circular which has been published in an edition of 5,000,000 copies by the organized trade unions and other organizations of working men should be distributed. The latter circular was prepared at the instigation of the national insurance societies, and warns against the dangers of venereal diseases.

Of all measures, however, emphatic warning by word of mouth of the dangers of illicit intercourse was extolled as the most effectual. Particularly valuable for this is an outline prepared by Professor Uhlenhuth, consulting hygienist for the seventh army corps, to be used with a small atlas, for instructing the men when they are undergoing medical inspection. In the home zone, every new body of recruits should be instructed in the same way. In the barracks and hospitals, warning placards should be hung up; placards of this kind are supplied free of charge by the society. It was further emphasized as urgently necessary to enlighten the women in the home zone who would be exposed to danger, and to impress on them the necessity for seeking medical care at the first suspicion of infection. The proposal was also made to publish suitable articles from time to time in the trade and insurance journals, and that the Krankenkassen themselves should arrange for enlightening lectures and gatherings for talks on this subject for their insured members. It was further urged that the treatment of soldiers with venereal disease should be carried on in special wards. Each army corps should have a consulting venereologist—at least as an expert adviser for the consulting hygienist.

The most difficult phase of the problem is, of course, prostitution. As it is impossible to realize anything like complete sanitation of prostitution, an attempt should be made to detain under lock and key (*festhalten*), until peace is declared, the numerous Belgian and French prostitutes, if they cannot all be deported (*wenn man sie nicht abschieben kann*). Where this is not practicable, every measure for supervision should be applied under the control of German specialist physicians. The most important protecting means in the fight against prostitution are undoubtedly personal prophylactics. No prudery should be allowed to prevail here. Provision must be made to facilitate in every way the furnishing to the troops of prevention means; under all circumstances it must be required that after illicit intercourse a prophylactic protecting treatment must be applied. No soldier should be given a furlough without a previous medical examination, and furloughs should be refused to those with venereal disease. All these measures—so far as military conditions permit—must apply to the younger officers as well as to the men.

Of course these prophylactic and therapeutic measures should not be regarded as sufficient in themselves. Everything should be eliminated that increases the lure to extramatrimonial sexual intercourse. The German society proposes the following additional measures: (*a*) economic and social provision for the unemployed girls and women in the home zone and in the regions where the army is stationed; (*b*) the closest supervision of private quarters and their restriction to the utmost; (*c*) restriction of evening leave of absence; (*d*) restriction of alcohol, and an ample supply of nonalcoholic beverages; (*e*) exclusion of women from employment as waitresses in saloons or from admittance to them and similar places; (*f*) shortening of the hours saloons are allowed to be open; (*g*) provision of reading rooms, writing rooms and gathering places for the soldiers, and finally, (*h*) the prevention of quacks treating venereal diseases or advertising their services in any way.

A long discussion was devoted to ways and means to avert extensive spread of venereal diseases through the families after peace is declared. As experience has shown, toward the end of a war, when truce is declared, the venereal diseases become much more prevalent. All the authorities are convinced that when this time arrives all the prophylactic measures will have to be enforced with especial strictness. When peace is declared, all who have been treated for venereal disease during the war must be examined anew, and those still capable of infecting others should be retained in the region occupied by the army, in the reserve garrison, or at work otherwise, until they are cured. These measures should apply not only to the active soldiers but also to all other men connected with the army, railroad employees, postmen, bands of workmen, etc.

A number of the officials of the society declared it practically impossible to carry out still another measure suggested—although in itself extremely desirable—namely, that all those who have taken part in the war should be examined for gonorrhea and syphilis (including an examination of the blood) before they are dismissed to return home. Those who are not quite cured but no longer capable of infecting others should have opportunity for treatment offered them at once after their return home. The officials of the state insurance organizations have announced that they will provide means for the latter purpose on a large scale. The plan is to have dispensaries like those which have been doing

good service at Hamburg since January, 1914, also organized by insurance officials.

The question was raised by the legal members of the board whether it would not conflict with professional secrecy to have the names of those still requiring treatment handed over to the insurance companies. This objection was met, however, by the provision in the German law on the subject, that it does not conflict with professional secrecy to pass the name from one official organization to another.

PARIS LETTER

PARIS, May 27, 1915.

The War

FROZEN MEATS FOR THE ARMY

The provisioning of the army has considerably increased the consumption of butchers' meat. This increase amounts to about 400,000 tons per year or about 1,200,000 head of cattle. Our supplies of animals for slaughter are consequently being rapidly reduced and there is reason to fear that there will be insufficient production of meat animals for four or five years after the hostilities. As it is easy to see that the purchase of frozen meats is going to be continually more and more difficult, the Chamber of Deputies has just voted to authorize the minister of war to obtain for the use of the army annually 120,000 tons of refrigerated meat from our colonies or from foreign countries. The minister of war will be able to apply to the uses of the civil population all the meat which is not used for the troops. It is intended to buy frozen meats, which can better stand the delays and other hazards of transportation without risk of deterioration and which are better suited for the use of the army than meats which are simply refrigerated. There are facilities for cold storage in certain of our ports, amounting to 5,000 tons at Marseilles, 1,500 tons at Bordeaux, 4,000 at Havre; such facilities also exist in some of our other cities, as 5,000 tons at Paris, 2,000 at Dijon, 300 at Lyons and 250 at Nice. There are 800 refrigerating cars for use in transportation into the interior.

During the discussion of the bill, a deputy, M. Laurent Bougère, drew attention to the fact that, in the opinion of many physicians who have been at the front, the daily ration of 500 gm. of meat per man is excessive during the summer and ought to be partially replaced by vegetables. The ministers of agriculture replied that the meat ration has been reduced to 400 gm. for the troops of the second line but maintained at 500 gm. for those of the first line so that the average ration of the army is about 450 gm. Endeavors are being made to supply as large a quantity as possible of fresh vegetables at the front.

So far as refrigerated meats are concerned, it has sometimes happened that the cold storage houses have offered for consumption meats which were not all they should be. It is therefore of interest to know the precautions which the government has taken against this contingency. The director of the commissary at the war department has informed the budget commission that there are already and will be more facilities for the inspection of the sanitary condition of these meats, not only at the ports where they are landed and where they may be rejected if they are not altogether satisfactory, but also in the factories, where veterinaries are to have the right of examining the animals at the slaughter houses and also of inspecting the processes of manufacturing.

PREVENTION OF DECUBITUS IN TRAUMATISMS OF THE SPINAL CORD CAUSED BY WOUNDS OF WAR

At a recent session of the Académie de médecine, Dr. Pierre Marie, professor of pathologic anatomy at the Faculté de médecine de Paris, and Dr. Gustav Roussy, agrégé in the same subject at the same school, read an interesting paper on this topic. They believe that the long admitted theory that bedsores are the result of a trophic cutaneous trouble directly produced by the lesion of the nervous center is false. In reality the causes of decubitus consist of the following: (1) compression, indefinitely prolonged, of the projecting parts of the body, as the sacrum, heels or elbows, against the surfaces of the bed; (2) infection produced in the skin thus altered by prolonged and repeated contact with urine and feces. To prevent these lesions, these two causes must be eliminated. The position of these patients should therefore be changed every hour during the day and every two hours during the night. Also as soon as such wounded patients are soiled by their dejecta they should be immediately washed, powdered and placed on dry linen.

INDIRECT INTRA-OCULAR LESIONS BY FIREARMS

At the last session of the Académie de médecine, Dr. Lagrange, professor of clinical ophthalmology at the Faculté de médecine de Bordeaux, called attention to the fact that firearms may cause serious ocular lesions without touching the eyes. Bullets traversing the face or fragments of shell injuring the skull sometimes cause serious conditions in an eye apparently intact. Similar results may follow the displacement of the air caused by the explosion of a large projectile. In such cases there is a more or less accentuated laceration of the uveal tract. Such intra-ocular lesions resulting from concussion of the tissues or from simple displacement of the air make it possible to understand the existence of lesions of the nervous centers (spinal cord or brain) and of the peripheral nerves by projectiles which do not come into immediate contact with them or by the vibration of the air caused by the explosion of a large shell. The ophthalmoscope makes it possible to see in the ocular membranes lesions which are invisible in the nervous centers and trunks.

TREATMENT FOR TUBERCULOUS SOLDIERS

The Conseil général du département de la Seine-Inférieure has decided to found a departmental sanatorium for the treatment of soldiers who have contracted tuberculosis while serving under the flag.

Measures Against Alcoholism

The minister of justice has just addressed to the public prosecutors a circular with regard to the recent law forbidding the manufacture, the sale and the circulation of absinthe and similar liquors. He requests them to aid by all measures in their power in the campaign undertaken by the government against alcoholism by prosecuting all infractions of the law of Jan. 23, 1873, against drunkenness. This law provides punishment, not only for individuals found drunken in public places, but also for those who sell drinks to manifestly drunken customers or who serve alcoholic liquors to children under 16. The penalties are moderate for the first offense, but increase proportionately with repetition, reaching imprisonment for two months, prohibition of the consumption of drinks on the premises or even closing up the establishment. These penalties are so rarely applied that they have almost been forgotten. It is necessary that repeated offenders should be carefully distinguished and that all penalties called for by the nature of the case should be rigorously applied.

Jubilee of Professor Metchnikoff

A celebration which, owing to present circumstances, has taken on a personal character, was recently held at the Pasteur Institute; the occasion was the seventieth birthday anniversary of Prof. Elie Metchnikoff. Prof. Gaston Darboux and Dr. Roux reviewed the career and the works of the Russian scientist, the first on behalf of the Académie des sciences and the second on behalf of the Pasteur Institute. Professor Metchnikoff gave the audience an interesting talk on the prolongation of life.

Marriages

FAIRFAX HALL, M.D., New Rochelle, N. Y., to Miss Eleanor Reyburn Remy of Evanston, Ill., at Port Chester, N. Y., May 29.

HARVEY WARD VAN ALLEN, M.D., Springfield, Mass., to Miss Anna Marion Dostal, at Schenectady, N. Y., June 7.

MAX J. COLTON, health officer of Cumberland, Md., to Miss Florence E. Gibbs of East Orange, N. J., June 7.

KARL MILLER WILSON, M.D., Baltimore, to Miss Mildred Hallowell Bentley of Sandy Springs, Md., June 1.

JOHN A. ASCHER, M.D., Sparks, Nev., to Miss Agnes C. McKinnon of Spokane, Wash., at Reno, June 2.

CRANFORD HAYWOOD DOUTHIRT, M.D., Roaring River, N. C., to Miss Lydia I. Reid of Towson, Md., June 2.

WALTER M. DROLL, M.D., Alta Vista, Kan., to Miss Hannah Amelia Netzig of Manhattan, Kan., May 26.

TODD J. WILSON, M.D., Negaunee, Mich., to Miss Lorena May Lockhart of Barrington, Ill., May 31.

ROBERT MARSHALL WHITE, M.D., to Miss Mary Tivnan, both of Dorchester, Boston, June 1.

MAURICE R. PERLSTEIN, M.D., to Miss Rose Tratner, both of Chicago, June 2.

Deaths

Samuel Baldwin Ward, M.D. Georgetown University, Washington, D. C., 1864; assistant surgeon, United States Volunteers, during the Civil War; a Fellow of the American Medical Association; formerly president of the Medical Society of the State of New York and Albany County Medical Society; a member of the Association of American Physicians; once professor of anatomy and surgery in the Woman's Medical College of the New York Infirmary; for many years dean and professor of the theory and practice of medicine in Albany Medical College; attending physician to the Albany Hospital and consulting physician to the South End Dispensary; secretary and treasurer of the executive committee of the state normal college, Albany, and president of the board of trustees of the Dudley Observatory; died at his home in Albany, June 3, aged 73.

Frank Neall Robinson, M.D. University of Pennsylvania, Philadelphia, 1895; a Fellow of the American Medical Association; a member of the American Climatological Association and the National Association for the Study and Prevention of Tuberculosis; formerly of Camden, N. J., and a member of the city council for two terms; who went to California ten years ago on account of ill health and was for two years assistant superintendent of the Pottenger Sanatorium for Tuberculosis in Monrovia; died at his home in that place, May 25, aged 40.

John S. Mack, M.D. University of Pennsylvania, Philadelphia, 1892; a practitioner and druggist of Slatington, Pa.; assistant surgeon of the Fourth Pennsylvania Infantry, United States Volunteers, during the Spanish-American War, with service in Cuba; half owner of the Crescent Slate Company and its secretary and treasurer; committeeman, school director and treasurer of the school board for two years; a member of the borough council and in 1909, burgess; died in the Hotel McClodes, Buffalo, May 30, from heart disease, aged 45.

Spiro F. Sargentich, M.D. College of Physicians and Surgeons, San Francisco, 1902; formerly a Fellow of the American Medical Association, and a practitioner of Portland, Ore., and Tacoma, Wash.; but more recently a resident of Seattle; who went to Serbia a few months ago to assist in the fight against typhus fever in his native country; died recently from that disease, aged 41.

Gustavus Freedom Walker, M.D. Vermont Medical College, Rutland, 1888; of Boston; a veteran of the Civil War and surgeon-lieutenant of the Ancient and Honorable Artillery Company of Boston and medical director for the Massachusetts Department of the Grand Army of the Republic; died at his home in Boston, June 1, from cerebral hemorrhage, aged 71.

Walter J. Mitchell, M.D. Medical College of Ohio, Cincinnati, 1884; a member of the Indiana State Medical Association; formerly of North Vernon, Ind., and clerk of the Jennings County Circuit Court; died in Indianapolis, May 31, from the effects of poison self-administered, it is believed, with suicidal intent, while of unsound mind, aged 52.

Daniel R. McCormick, M.D. Jefferson Medical College, 1882; a Fellow of the American Medical Association; medical director of the Lancaster (Pa.) General Hospital; a member of the Lancaster school board and of the Board of Health of Lancaster County; died at his home in Lancaster, May 31, from cerebral hemorrhage, aged 58.

James Fulton McCutchan, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1868; a member of the Illinois State Medical Society and president of the Warren County Medical Society; a veteran of the Civil War, and one of the oldest practitioners of Warren County; died suddenly at his home in Alexis, Ill., May 28, aged 81.

Robert Clement French, M.D. Tulane University, New Orleans, 1906; of Natchez, Miss.; aged 35; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; oculist and aurist to the Natchez Hospital; died in the Touro Infirmary, New Orleans, May 30, after a surgical operation.

Harry H. Sherk, M.D. Jefferson Medical College, 1886; a Fellow of the American Medical Association; a member of the Camden (N. J.) Board of Health, and a practitioner and ophthalmologist of Camden for thirty-five years; died June 1, in a private hospital at Chestnut Hill, Pa., from cerebral hemorrhage, aged 55.

Herbert Lucian Grant, M.D. Tulane University, New Orleans, 1901; of El Campo, Texas; a member of the State Medical Association of Texas; died in the De George Hotel, Houston, Texas, June 2, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, aged 38.

James William Washington Culpepper, M.D. Chattanooga (Tenn.) Medical College, 1904; of Cullman, Ala.; a member of the Medical Association of the State of Alabama; aged 38; died in a hospital in Birmingham, Ala., May 27, from injuries sustained in an automobile accident two days before.

Morris Kush, M.D. Cornell University, New York City, 1913; an intern in Mount Sinai Hospital, New York City; aged 27; a member of the medical scholarship society of Alpha Omega Alpha; was accidentally drowned during a heavy windstorm, May 26, while canoeing on Lake George.

John Milton Shields, M.D. Albany (N. Y.) Medical College, 1868; formerly a Fellow of the American Medical Association; for many years a medical missionary of the Presbyterian Church in New Mexico; died at his home in Jemez Springs, N. M., May 23, aged 73.

Frank Eugene Baker, M.D. Long Island College Hospital, Brooklyn, 1891; formerly a practitioner of Florida, but more recently a resident of Woodford, Vt.; died at the home of his mother in North Adams, Mass., May 8, from acute prostatitis, aged 45.

Gustav Hahn, M.D. John A. Creighton Medical College, Omaha, 1903; a Fellow of the American Medical Association; a well-known practitioner of Omaha; died at his home in that city five weeks after an operation for cholelithiasis, aged 52.

Samuel Miner Glenn, M.D. Western Reserve University, Cleveland, 1910; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; died at his home in Warren, Ohio, May 30, aged 36.

Walter Carl Smiley, M.D. University of Southern California, Los Angeles, 1906; of Banning, Calif.; a Fellow of the American Medical Association; died at the home of his parents in Pasadena, Calif., May 30, from nephritis, aged 35.

T. Edwin Martin, M.D. Northwestern University Medical School, Chicago, 1904; a practitioner and druggist of Homedale, Ida.; formerly editor of the Homedale *Press*; died May 29, it is believed from an overdose of morphin, aged 32.

James M. Guess, M.D. Medical College of Georgia, Augusta, 1878; formerly of Centerville, Ga., but for several years a resident of Stone Mountain, Ga.; died in a hospital near Atlanta, May 26, from cerebral hemorrhage, aged 61.

Frederick Arthur Ruickoldt, M.D. University of Jena, Germany, 1865; a Fellow of the American Medical Association and founder of the New Haven Medical Association; died at his home in New Haven, Conn., June 2, aged 75.

John D. Miller, M.D. Louisville (Ky.) Medical College, 1903; of Batesville, Miss.; a member of the Mississippi State Medical Society; was instantly killed on Belmont levee by the overturning of his automobile, June 1, aged 36.

John A. Gale, M.D. Medical College of Indiana, Indianapolis, 1875; formerly of Denver, and local surgeon to the Colorado and Southern Railway; a resident of Los Angeles; died in Whittier, Calif., May 1.

William Wakeham, M.D. McGill University, Montreal, 1866; for thirty-six years fishery inspector for the lower St. Lawrence and gulf, and local justice of the peace; died at his home in Gaspé, Que., May 20, aged 70.

Samuel Cole, M.D. Rush Medical College, 1865; New York University, New York City, 1866; a Fellow of the American Medical Association; died at his home in Chicago, June 5, from heart disease, aged 70.

William Carey Allen, M.D. Hahnemann Medical College, Philadelphia, 1883; for twenty-seven years a practitioner of Colorado Springs, Colo.; died at his home in that city, June 2, from heart disease, aged 61.

Clayton M. Stewart, M.D. Missouri Medical College, St. Louis, 1857; Jefferson Medical College, 1860; for many years a practitioner of Scott County, Ill.; died at his home in Jacksonville, Ill., April 30, aged 83.

Edward Richard Johnstone, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1892; for several years a practitioner of San Luis Obispo County, Calif.; died at his home in Morro, Calif., May 20, aged 51.

Eliza J. Zimmerman Burnside, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1860; for many years a practitioner of Philadelphia; died at the home of her sister in Tiffon, Ohio, May 28, aged 83.

Theodore F. Meisenheimer, M.D. New York University, New York City, 1880; a member of the Medical Society of the State of North Carolina; died at his home in Morven, May 27, aged about 63.

William Himmelsbach, M.D. Cooper Medical College, San Francisco, 1898; a member of the Medical Society of the State of California; of Watsonville, Calif.; died at Oakland, Calif., May 23, aged 52.

James Francis Hackett, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1889; of Kellogg, Iowa; died at the home of his daughter in Maxwell, Iowa, May 9, aged 56.

Benjamin Frank Zerbe, M.D. Jefferson Medical College, 1878; formerly prothonotary of Lebanon County, Pa.; died at his home in Schaefferstown, Pa., about May 31, from acute meningitis, aged 61.

Addison Henry Dey, M.D. University of Pennsylvania, Philadelphia, 1881; for many years a practitioner of Trenton, N. J.; died at his home in that city, May 16, from cerebral hemorrhage, aged 58.

William Thomas Bogie, M.D. Bellevue Hospital Medical College, 1878; formerly a member of the Oklahoma State Medical Association; died at his home in Ardmore, Okla., May 29, aged 59.

George V. Hale, M.D. Jefferson Medical College, 1883; also a druggist; formerly local surgeon of the Southern Pacific System at Burbank, Calif.; died in Los Angeles, April 24, aged 61.

Louis Frederick Bischof, M.D. New York University, New York City, 1885; also a graduate of the New York College of Pharmacy; died at his home in New York City, May 23, aged 51.

Joseph S. Stanley (license, Mississippi), a Confederate veteran and a practitioner of Macon, Miss., for forty years; died suddenly in Valdosta, Ga., May 20, from heart disease, aged 68.

Robert Newton Fryer, M.D. University of Nashville, Tenn., 1870; for about sixty years a practitioner; died at his home in Newbern, Tenn., April 7, from senile debility, aged 85.

Charles Hiram Colegrove, M.D. Detroit Homeopathic Medical College, 1873; a veteran of the Civil War; died at his home in Willimantic, Conn., May 29, aged 73.

Daniel Joseph Mehegan, M.D. Harvard Medical School, 1894; a member of the Massachusetts Medical Society; died at his home in Taunton, Mass., April 21, aged 46.

J. Elizabeth Tompkins, M.D. Harvey Medical College, Chicago, 1896; for twenty-five years a practitioner; died at her home in Chicago, May 26, aged 70.

Francis Joseph Bicker, M.D. Jefferson Medical College, 1890; a practitioner and druggist of South Camden, N. J.; died at his home, May 24, aged 58.

William Ernest De La Perriere, M.D. Atlanta, Ga., College of Physicians and Surgeons, 1907; died at his home in Hoschton, Ga., May 22, aged 30.

John Franklin Marshall, M.D. New York University, New York City, 1890; died at his home in Brooklyn, May 31, from pneumonia, aged 50.

Henry Howard Townes, M.D. Medical College of Georgia, Augusta, 1896; of Poverty Hill, S. C.; died in Highlands, N. C., May 24, aged 45.

William Johnston DeWitt Sproule, M.D. University of Toronto, Ont., 1906; died at his home in Harlem, Mont., about May 20, aged 32.

Directus DeForest Cole, M.D. Hahnemann Medical College, Chicago, 1881; died at his home in Newark, N. Y., May 24, aged 60.

Eddie Wise Jenkins, M.D. Bellevue Hospital Medical College, 1883; of Farmdale, Fla.; died in Columbus, Ga., about May 21.

James A. Clementson, M.D. Hahnemann Medical College, Chicago, 1895; died at his home in Lancaster, Wis., May 19, aged 42.

Rufus N. Younger, M.D. University of Louisville, Ky., 1888; died at his home in Whitesboro, Tex., May 19, aged 61.

William A. T. Keeler, M.D. Jefferson Medical College, 1873; died at his home in Stroudsburg, Pa., May 24, aged 81.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

LOUISIANA GOES ON RECORD

What One Southern State Thinks of Fraudulent "Patent Medicines"

Readers of THE JOURNAL will remember that Dr. Oscar Dowling, president of the State Board of Health of Louisiana, and one of the Trustees of the American Medical Association, has been sued by the Chattanooga Medicine Company. The suit was based on the fact that Dr. Dowling, in his official capacity as State Health Officer, exhibited in the Louisiana "State Health Train," among other educational placards, one exposing Wine of Cardui. After the suit was brought, the State Board of Health of Louisiana officially upheld Dr. Dowling and also declared Wine of Cardui a fraud.

On June 14, the Louisiana General Assembly, in special session at Baton Rouge, passed the following, known as Senate Concurrent Resolution Number Six:

"WHEREAS, Dr. Oscar Dowling, President of the Louisiana State Board of Health and, ex-officio, Commissioner of Food and Drugs, in his administration of these departments, has demonstrated the highest regard for his oath of office and courage in the case of public health against mercernary interests which have attacked the work of the Louisiana State Board of Health and discredited its efforts to protect the public; therefore be it

"*Resolved*, By the Senate of the State of Louisiana, the House concurring, we approve the campaign of the Louisiana State Board of Health as conducted by Dr. Oscar Dowling, President, to rid the State of Louisiana of the pernicious patent nostrums so widely advertised and sold under misleading and fraudulent pretences as to curative properties.

"*Resolved, further*, That we commend the action of the 'Louisiana Press Association' for its endorsement of the Louisiana State Board of Health in its effort to control the patent medicine evil, and Dr. Oscar Dowling, President, for his defense of the medical profession, the American Medical Association and the Louisiana State Board of Health at the Twenty-Sixth Annual Session of the Louisiana Press Association in Monroe, June 10, 1915, against the attack made by one of the speakers from a neighboring state who appeared on the program.

"THOMAS C. BARRET, Lieutenant-Governor and President of the Senate;

"L. E. THOMAS, Speaker of the House of Representatives;

"L. E. HALL, Governor of the State of Louisiana."

It should be said that the Louisiana Press Association, which was recently in session at Monroe, La., had already gone on record against questionable advertising, especially as it refers to "patent medicines" and quackery. At its annual convention held last week this association reaffirmed its position on the question of fraudulent advertising and requested the president of the State Board of Health to furnish its members with a list of concerns that had been placed under ban by the board.

At the Louisiana Press Association's convention at Monroe a paper was read by one James A. Metcalf. This individual championed the cause of "patent medicines," by the usual method: vilifying the medical profession in general and the American Medical Association and the Editor of THE JOURNAL in particular.

This attempt on the part of the "patent medicine" interests to influence the press of Louisiana acted as a boomerang which was thus described by the Monroe (La.) *News-Star* in reporting the incident:

> ". . . the speaker failed utterly to help the cause of the patent medicine manufacturer with the Louisiana newspaper men who showed their feelings later by unanimously and loudly adopting a resolution endorsing the fight of the State Board on patent medicine frauds and requesting Dr. Dowling to furnish the press of the state a list of these nostrums so they may be banished from the advertising columns."

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ARTICLE REFUSED RECOGNITION

Report of the Council on Pharmacy and Chemistry

Below appears an abstract of the Council's action on an article refused recognition which was not deemed of sufficient importance to require a lengthy report.

Iodex

Iodex is manufactured by Menley and James, Ltd., New York. It is advertised as

". . . an embodiment of vaporized iodin in an organic base, reduced and standardized at 5 per cent. by incorporation with a refined petroleum product."

The advertising conveys the impression that the effects of free iodin are to be obtained from the preparation; it is said to contain "5 per cent. Therapeutically Free Iodine," and to do

". . . everything the doctor expects of FREE iodin employed by inunction, without one physical or therapeutic drawback."

The statements are also made that the preparation "neither stains, irritates, blisters or cracks the skin," and that "thirty minutes after inunction iodin can be found in the urine."

The following report of an examination made by the Chemical Laboratory of the American Medical Association has been submitted to the Council:

"Iodex is dark green, practically black. The green color is apparent when the ointment is rubbed on the skin, but disappears on continued rubbing. This nonstaining property is explained by the results of a test for free iodin, made on five specimens, four of which yielded only minute traces of free iodin, while the fifth yielded none. Of course, the statements that Iodex is an 'Effective Free Iodin Application Without Drawbacks' and also a means of 'Really Efficient External Iodine Therapy Without Stain or Irritation' contradict each other. Free iodin cannot be present in a sufficient quantity to be therapeutically efficient in any application which does not stain or irritate the skin.

"The total iodin content of the five specimens was found to be 2.63 per cent.—a little over one-half of the content claimed.

"Absorption and excretion experiments were performed to test the claim that 'thirty minutes after inunction iodin can be found in the urine.' In several subjects, from 1 to 2 gm. of Iodex was rubbed on the skin of the forearms, and the urine, for periods varying from seven to seventy-two hours, was collected and tested for iodin. In all of the tests the results were negative."

Iodex is advertised as beneficial in muscular soreness, sprains, sciatica, neuritis, chronic rheumatism, enlarged glands, orchitis, epididymitis, gout, burns and dermatomycoses. It is also said to be "Indicated in Glandular Enlargements, Inflammatory Conditions, Various Joint Diseases, Rheumatism, Skin Diseases, Chilblains, etc., etc."

To sum up:

1. As shown in the foregoing laboratory report, the composition is incorrectly stated, for the actual iodin content is only about half of that claimed.

2. It is not true that the action of Iodex is essentially that of free iodin, which is the impression conveyed by the advertising.

3. The assertion made in the advertising, that iodin may be found in the urine shortly after Iodex has been rubbed on the skin, has been experimentally disproved.

In view of these findings, the Council voted that Iodex be refused recognition for conflict with Rules 1, 4 and 6.

Modes of Infection in Tuberculosis.—Infection in tuberculosis results from close and perhaps prolonged association with some individual suffering from the disease. The nearness to the individual is not important, although droplet infection from forceful coughing is more apt to occur if contact is close; but the mere occupancy of a room previously used by a consumptive who has been careless in the disposal of his sputum is sufficient. Heat, poor ventilation and lack of sunlight increase the liability of infection, dust also acting deleteriously. Under ordinary conditions dishes are probably not responsible for the spread of the disease, but blankets and soiled or imperfectly cleaned linen may be an important source of infection.—Ernest A. Sweet, *Public Health Reports*, April 9, 1915.

Correspondence

Ben Franklin's Views

To the Editor:—The extract from the "Autobiography of Benjamin Franklin" (Miscellany, THE JOURNAL, June 5, 1915, p. 1933) gives a mistaken idea of the habits of our first American philosopher as regards his use of alcohol. Early in life as an impecunious printer's devil he may have been as abstemious as is asserted, but with the access of fortune and fame he certainly indulged more freely in "that muddling liquor" which he condemns. This is only an example of the not uncommon failing which he shared with less famous mortals in not always squaring his practice with his preaching.

Sir George Trevelyan, in his "American Revolution," says:

"But Franklin was not long left without a colleague worthy of himself, and of the nation which he represented. The French treaty had been signed in February, 1778; and by the second week of April, John Adams was already supping with him 'on cheese and beer' in his suburban residence at Passy."

Fortunately the growing habit of abstinence from alcohol in the teachings of pathology and modern physiology rests on a surer foundation than is afforded in the precepts or practice of Poor Richard, whose homely and parsimonious maxims are today as archaic as the author's lightning rods or his old fur cap. Franklin's early objection to alcoholic beverages was chiefly on the ground of their expensiveness, and in an age of high cost of living and reckless expenditure this is a poor argument, which would apply with equal or greater force to the use of bottled spring water.

We are sufficiently grown up as a nation to hear with composure the truth about our early history, and it cannot harm the secure fame of Franklin to know that he was fond of both wine and women, a fact which he himself took no pains to conceal during his long and industrious lifetime. It is not recorded that his convivial habits or mulierosity ever impaired to the slightest degree his popularity or efficiency as a special ambassador to the gay court of Louis XVI during a dark and critical period of our country's history. In these stirring days of history in the making it is well to remember that not all of our Revolutionary heroes and patriots were impeccable saints, our school histories to the contrary notwithstanding. One of Franklin's bastard sons bore his name and was appointed a royal governor of New Jersey when that state was a crown colony. He was knighted by George III and remained a Tory partisan all his life.

Benjamin Franklin was a notorious sufferer from gout, and in his humorous dialogue under date of midnight, Oct. 22, 1780, occurs the following frank admission that he was far from being a total abstainer:

"*Franklin.* Eh! oh! eh! What have I done to merit these cruel sufferings?

"*Gout.* Many things: you have ate and drunk too freely and too much indulged those legs of yours in their indolence."

For physicians interested in the treatment of tuberculosis, it is of interest to recall that Franklin had knowledge of the value of fresh air methods equal to the most advanced views current today. He says:

"It is recorded of Methuselah, who, being the longest liver, may be supposed to have best preserved his health, that he slept always in the open air; for when he had lived five hundred years an angel said to him: 'Arise, Methusaleh, and build thee an house, for thou shalt live yet five hundred years longer.' But Methuselah answered and said: 'If I am to live but five hundred years longer, it is not worth while to build me an house; I will sleep in the air, as I have been used to do.' Physicians, after having for ages contended that the sick should not be indulged with fresh air, have at length discovered that it may do them good. It is therefore to be hoped that they may in time discover likewise that it is not harmful to those who are in health, and that we may then be cured of the aerophobia that at present distresses weak minds, and makes them choose to be stifled and

poisoned rather than leave open the window of a bedchamber or put down the glass of a coach."

John Adams, who attained the venerable age of 91, was never converted by the doctrine of his eminent colleague whom he long survived, and he was always convinced that Franklin, who died at the age of 84, was prematurely cut off by his foolish habit of exposing himself to drafts of air.

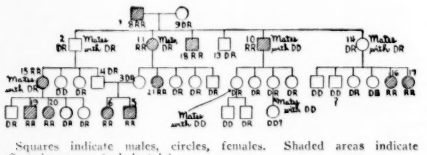
HENRY L. SHIVELY, M.D., New York.

Polydactylism as a Hereditary Character

To the Editor:—I have been vastly amused but not convinced by the easy grace with which Dr. W. R. Tymms (THE JOURNAL, June 5, 1915, p. 1931) surmounts the difficulties which I imagined I encountered in proving polydactylism a recessive hereditary character.

In the first place, as regards the question of an imperfect dominance of either the normal or the polydactyl condition, allow me to point out that such a conclusion was reached some time since by Bateson and Castle, whose names are most intimately connected with experimentation to determine the facts of mendelian heredity, although they seem to feel that the *polydactyl* condition is the imperfect dominant.

It will be recalled that as an instance which might tend to prove polydactylism a recessive character, I suggested that 4 and 3, being offspring of polydactylous progenitors, could each very well be considered DR in composition and they, each contributing an R to 5 and 6, cause this pair to be RR and thus to present the recessive polydactyl character (referring to my chart as edited by Dr. Tymms), all other polydactylous members of the tree exhibiting the character



Squares indicate males, circles, females. Shaded areas indicate affected persons (polydactyls).

because of the imperfect dominance of the normal five-fingered state. Now Dr. Tymms labels 8 as RR, which means that *both* of his parents must have borne this factor. Then 8 marries a woman 9 labeled, by him, as DR, meaning that she too bears the same polydactylous factor. And, as if there were some controlling destiny operative, 2, 11, 14 and 15 all meet and mate with a DR each.

If polydactylism is carried as a potential factor so generally, I submit that we must soon become a polydactylous race. Otherwise, it would appear that when a hurdle is encountered, the easiest way of getting by is simply to remove it.

JULIAN W. BRANDEIS, M.D., New York.

The Country Doctor

To the Editor:—It seems to me that both Dr. Flancher and Dr. Ames (THE JOURNAL, March 27, 1915, p. 1095; June 5, 1915, p. 1931) have missed the mark. The first requisite of either a country or a city physician is character; then comes ability. I will take off my hat to the physician who says he does not know, but who at the same time will work to find out. There is no question that the city physician who realizes his responsibilities can do better work with less effort than the country physician. Every man should realize his limitations. We all have them. Then he should not hesitate to call a better man, even if he is a city man. Thwarted ambitions act like poison in human nature, and a normal and temperate satisfaction of ambition is what keeps it sweet and sane. The clinics and hospitals in the city give an opportunity which we country fellows hunger for. We cannot all live in the city. Patients in the country are entitled to as good treatment as can be obtained anywhere. If we cannot give it, we should call in the man who can, no matter where he lives.

HENRY C. CALDWELL, M.D., St. Croix Falls, Wis.

The Tendency to Write Long Sentences

To the Editor:—I desire to call attention to what seems to be a growing evil in the matter of literary productions by physicians and others, although not a new one. It is a tendency to make long sentences which often require to be read two or three times before the meaning can be ascertained, consuming needlessly the time of the reader. In the last number of one American medical journal, for example, is an otherwise admirable paper in which this is the case. I experienced this in reading the paper, so that it took me twice as long to read it as it should have done.

An editorial reference to this tendency I think would be helpful to the reader, and do the author no harm. As I have said, this practice is not limited to the medical writer, but it is with him that we doctors are for the most part concerned.

JAMES TYSON, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE KRISTELLER TECHNIC

To the Editor:—In Dr. Baer's article on "Scopolamin-Morphin Treatment in Labor" (THE JOURNAL, May 22, 1915, p. 1723), under Case 9, he says: "Patient was delivered by Kristeller." What is Kristeller? I have searched all my obstetric literature and can find nothing.

J. M. HEYDE, M.D., Loudonville, Ohio.

ANSWER.—The Kristeller technic is a method of expression of the fetus suitable for those cases in which labor is not progressing satisfactorily and in which an outlet forceps or more recently a dose of pituitary extract is usually employed.

The head should be in the vulva, and the abdomen must be thin and relaxed enough to permit the obstetrician's assistant to grasp the fundus efficiently. A light anesthesia may be used to facilitate this hold. The grip is on the fundus, the fingers of the two hands parallel behind and the thumbs in front. The expression should be carried out in one or two sustained efforts, preferably during a uterine contraction. The line of force should be exerted in the direction of the axis of the inlet, if necessary shifting the uterus to meet this requirement.

This method should not be undertaken unless the obstetrician feels assured of success. Such force, if applied at the placental site and unsuccessful, might result in premature detachment and death of the fetus. The uterus might likewise be seriously injured. If there is reason to suspect inflammatory involvement of the adnexa, the procedure should not be considered. The following is a reference to the original article of Kristeller: "Die Expressio Foetus; Neues Entbindungsverfahren unter Anwendung äusserer Handgriffe," *Monatschr. f. Geburtsh. u. Frauenkr.*, 1867, xxix, 337.

OUR NEUTRALITY QUESTIONED

To the Editor:—I was much amused at your neutrality being questioned because the letter "G" follows "F," when Dr. Heisen queried why the letter from your correspondent in Germany is placed to follow the letter from your correspondent in France, and he accused you of favoritism. (THE JOURNAL published Dr. Heisen's letter May 29, in Knocks and Boosts Department, page 22.)

I have noticed the tendency in THE JOURNAL to arrange all sequences alphabetically. In the Current Literature Department, in particular, I can always find, in their respective alphabetical positions, the domestic journals and the journals from England, from France, from Germany and Italy, with the Scandinavian journals always last. The alphabetical arrangement saves much time and labor in looking up things, but one discrepancy I have always wondered at, namely, that the Brazil and Argentine journals follow Italy.

A. M. J.

ANSWER.—In case of the journals in foreign tongues, it has been found more convenient for both readers and translators

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to arrange them by the languages—grouping the allied ones—rather than by the names of the countries. This makes no difference in the sequence English, French, German and Italian, but Brazil journals are in Portuguese and the Argentine in Spanish. With the Swedish are grouped the Danish and Norwegian. Persons who can read one of the languages in these groups usually can read all the others in the group.

THE HARRISON NARCOTIC LAW

To the Editor:—A habitué uses, on an average, 3 ounces of laudanum a week. I write a prescription for this amount each week for him. Is it illegal for me to write "Sig.: Laudanum—Poison" as directions for the druggist to write on bottle, or should the directions be for a reduction of the dose on each prescription written for a habitué, regardless of the quantity the prescription calls for to comply with the Harrison law?

J. S. G.

ANSWER.—Treasury decision 2200, issued May 11, directs that where a physician, dentist or veterinarian prescribes any of the drugs covered by the law, in a quantity more than is apparently necessary to meet the immediate needs of a patient in the ordinary case, or where it is for the treatment of an addict or habitué to effect a cure, or for a patient suffering from an incurable or chronic disease, such physician, dentist or veterinary surgeon should indicate on the prescription the purpose for which the unusual quantity of drugs so prescribed is to be used. In cases of treatment of addicts, these prescriptions should show the good faith of the physician in the legitimate practice of his profession by a decreasing dosage or reduction of the quantity prescribed from time to time, while, on the other hand, in cases of chronic or incurable diseases, such prescriptions might show an increasing dosage or increasing quantity. In accordance with this ruling, prescriptions given to addicts should show a definite dosage decreasing from time to time.

LITERATURE ON PROSTATITIS

To the Editor:—Please publish a list of literature on acute and chronic prostatitis.

C. W. DAVIDSON, M.D., Madisonville, La.

ANSWER.—The following is a list of articles on this subject:

Smith, E. O.: Pathology of the Prostate, THE JOURNAL, Dec. 6, 1913, p. 2035.
Young, H. H.: Rôle of Prostate and Seminal Vesicles in General Toxemias, THE JOURNAL, Sept. 13, 1913, p. 822.
McCrae, Thomas: Remote Effects of Lesions of Prostate and Deep Urethra, THE JOURNAL, Aug. 16, 1913, p. 477.
Hitchens, A. P., and Brown, C. P.: Bacteriology of Chronic Prostatitis, *Am. Jour. Pub. Health*, September, 1913.
Kremble, A.: Chronic Prostatitis, *Med. Rec.*, New York, May 16, 1914.
McKenna, C. M.: Device for Treatment of Prostatitis, *Illinois Med. Jour.*, April, 1914; abstr., THE JOURNAL, May 2, 1914, p. 1434.
Smith, Lucian, W.: Suprapubic Prostatectomy, with Special Reference to Drainage, THE JOURNAL, Nov. 7, 1914, p. 1667.
Potter, C.: New Perineal Board for Use in Perineal Prostatectomies and Genito-Urinary and Rectal Surgery, THE JOURNAL, Oct. 24, 1914, p. 1476.
Thomas: Rôle of Functional Kidney Tests and Preoperative and Postoperative Prostatectomy Mortality, THE JOURNAL, Nov. 28, 1914, p. 1909.
Barnett, C. E.: Suprapubic Prostatectomy, THE JOURNAL, Nov. 26, 1914, p. 2273.

USE OF LIGHT IN THERAPY

To the Editor:—Where may I find some recent articles on the use of light in therapy, especially in reference to tuberculosis?

H. COHN, M.D., Oak Forest, Ill.

ANSWER.—The following is a list of references to articles on this subject:

Kime, J. W.: Heliotherapy in Treatment of Tuberculosis, *Iowa State Med. Soc. Jour.*, April, 1915.
Hinsdale, G.: Surgical Tuberculosis and Its Treatment by Heliotherapy, *Brit. Jour. Tuberc.*, April, 1915.
Johansson, S.: Heliotherapy of Surgical Tuberculosis, *Hygiea*, 1915, lxxvi, No. 24; abstr., THE JOURNAL, March 6, 1915, p. 868.
Twichell, D. C.: Effect of Direct Rays of Sun on Experimental Tuberculosis, *New Mexico Med. Jour.*, January, 1915.
Kisch, E., and Grätz, H.: Tuberculous Fistula Cured by Exposure to Direct Sunlight, *Arch. f. klin. Chir.*, 1914, civ, No. 2; abstr., THE JOURNAL, June 6, 1914, p. 1850.
Hussy, A.: Sunlight Plus Mountain Climate in Treatment of Tuberculosis of Hand, *Beitr. z. klin. Chir.*, May, 1914; abstr., THE JOURNAL, Sept. 12, 1914, p. 977.
Von Schrötter, H.: Heliotherapy of Tuberculosis, *Med. Klin.*, Dec. 21, 1913.
Brinch, T.: Treatment of Internal Tuberculosis with Stored Light Rays, *Ugesk. f. Læger*, Nov. 27, 1913; abstr., THE JOURNAL, Jan. 10, 1914, p. 174.
Rollier, A.: La Cure de Soleil, Lausanne, Constant Tarin, 1914, cloth, pp. 217, with 147 illustrations, price, 20 francs.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 6. Chairman, Dr. W. H. Sanders, Montgomery.
ALASKA: Juneau, July 6. Sec., Dr. Harry C. DeVighne, Juneau.
ARIZONA: Phoenix, July 6-7. Sec., Dr. John Wix Thomas, Phoenix.
COLORADO: Denver, July 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
CONNECTICUT: New Haven, July 13. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Eclectic: New Haven, July 13. Sec., Dr. T. S. Hodge, 19 Main St., Torrington; Homeopathic: New Haven, July 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.
DISTRICT OF COLUMBIA: Washington, July 13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
ILLINOIS: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.
INDIANA: Indianapolis, July 13-15. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.
MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
MARYLAND: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.
MASSACHUSETTS: Boston, July 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
MISSOURI: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.
NEW HAMPSHIRE: Concord, July 6-7. Regent, Mr. H. C. Morrison, Concord.
NEW JERSEY: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.
NEW MEXICO: Santa Fe, July 12. Sec., Dr. W. E. Kaser, East Las Vegas.
NEW YORK: Albany, Buffalo, New York and Syracuse, June 29-July 2. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.
NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, Grand Forks.
OKLAHOMA: Oklahoma City, July 13. Sec., Dr. Ralph B. Smith, 502 Daniel Bldg., Tulsa.
OREGON: Portland, July 5. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.
RHODE ISLAND: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.
SOUTH DAKOTA: Pierre, July 12. Sec., Dr. Park B. Jenkins, Waubay.
TENNESSEE: Memphis and Nashville, June 25, 26. Sec., Dr. A. B. De Loach, 426 Scimitar Bldg., Memphis.
TEXAS: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.
UTAH: Salt Lake City, July 5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.
VERMONT: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.
VIRGINIA: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.
WASHINGTON: Seattle, July 6. Sec., Dr. G. N. Sattner, Baker Bldg., Walla Walla.
WISCONSIN: Milwaukee, June 29-30—July 1. Sec., Dr. J. M. Beffel, 3200 Clybourn St., Milwaukee.
WYOMING: Laramie, June 28-30. Sec., Dr. H. E. McCollum, Laramie.

Important Changes in the New Jersey Medical Practice Act

The following abstract from the New Jersey state medical law, as recently amended, has been received from Dr. H. G. Norton, secretary of the New Jersey State Board of Medical Examiners:

A. From and after the first day of July, 1919, no person shall be admitted to examination for license to practice medicine or surgery, unless he shall present to said board a certificate from the Commissioner of Education of this state, showing that in addition to, and subsequent to, obtaining the preliminary and academic education above mentioned, i. e., an academic education consisting of a four year's course of study in an approved public or private high school, or the equivalent thereof, and prior to commencing his or her study in a medical college, he or she has completed a satisfactory course of one year in a college or school of art and science approved by the Commissioner of Education of this state, during which year he or she has studied either French or German, and also chemistry, physics and biology.

B. From and after the first day of July, 1920, no person shall be admitted to examination for license to practice medicine or surgery, unless he shall present to said board a certificate from the Commissioner of Education of this state, showing that in addition to, and subsequent to, obtaining the preliminary and academic education mentioned in the first paragraph of this section and prior to commencing his or her study in a medical college he or she has completed a satisfactory course of two years in a college or school of art and science approved by the Commissioner of Education of this state, during which two years he or she has studied either French or German; and also chemistry, physics and biology.

C. Every applicant for admission to examination for a license to practice medicine or surgery shall, in addition to

the above requirements, prove to said board that he has received a diploma conferring the degree of doctor of medicine from some legally incorporated medical college of the United States, which college, in the opinion of said board, was in good standing at the time of the issuance of said diploma.

After the first day of July, 1916, such applicant shall, in addition to the above requirements, further prove to said board that after receiving such degree, diploma or license; he has served as an intern for at least one year in a hospital approved by said board.

This board will not consider a course of lectures in which the applicant has been conditioned in more than one subject satisfactory, unless these conditions shall have been passed off before entering a subsequent course. If the student be conditioned in a number of subjects sufficient to prevent him advancing to a higher grade in the same college, that year will not be considered as one of the four courses required by this board, even though at another college he be allowed to enter an advanced class; but he must take that entire year over, whether at the college where he failed or at another one.

Connecticut March Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the practical and written examination held at New Haven, March 8-9, 1915. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 12, of whom 8 passed and 4 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1906)	82.4
Harvard University	(1903)	75.3
Dartmouth Medical School	(1911)	80.1
Albany Medical College	(1914)	77.3
Coll. Phys. and Surgs. in City of N. Y.	(1887) 76.4; (1903)	81.6
Columbia University	(1912) 85.5; (1914)	79.4
FAILED		
College of Phys. and Surgs., Boston	(1908)	61.3
College of Phys. and Surgs., in the City of N. Y.	(1907)	66.7
Medico-Chirurgical College of Philadelphia	(1914)	71.2
Royal University of Naples	(1912)	45.2

Utah April Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, April 5-6, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Pacific Medical College*	(1914)	78.3, 79
John A. Creighton Medical College	(1914)	81.5, 82.1
Western Reserve University	(1912) 84.7; (1913)	80.4
FAILED		
Michigan College of Med. and Surg.	(1904)†	

* This institution is located at Los Angeles, and grants as much as three years of advanced standing for work done in osteopathic colleges, and is, therefore, classified among such institutions.

† No grade given.

Iowa May Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that 2 candidates were licensed on examination and 8 through reciprocity, May 6, 1915. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Hahnemann Medical College and Hospital, Chicago	(1909)	83
Rush Medical College	(1885)	75.9
LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University	(1911)	Missouri
Rush Medical College	(1906)	Missouri
Barnes Medical College	(1902)	Missouri
St. Louis College of Physicians and Surgeons	(1895)	Missouri
Washington University	(1912)	Missouri
John A. Creighton Medical College	(1913)	Nebraska
University of Nebraska	(1909)	Nebraska
Wisconsin College of Physicians and Surgeons	(1912)	Missouri

Book Notices

DIE CHIRURGISCHEN INDIKATIONEN IN DER NERVENHEILKUNDE. Ein Kurzer Wegweiser für Nervenärzte und Chirurgen. Von Dr. Siegmund Auerbach, Vorstand der Poliklinik für Nervenkranke in Frankfurt a.M. Paper. 6.40 marks. Pp. 204, with 20 illustrations. Berlin: Julius Springer, 1914.

The author believes that every neurologist should be able to determine and should determine the cases involving the nervous system in which operation should be performed by the surgeon, but he does not approve of the neurologist as a rule being at the same time the operator. The two fields he holds to be quite separate and distinct. The subjects first discussed are exophthalmic goiter and tetany. Three forms of exophthalmic goiter are described, one in which the thyroid is chiefly at fault, one in which both the thyroid and thymus are involved, and a third in which the thymus is the chief organ at fault. In the latter variety the thyroid is only quantitatively involved, but as it is at times difficult to recognize these different forms, he considers it one's duty to remove the thymus as well as to operate on the thyroid in all severe cases of exophthalmic goiter. In severe cases of tetany, transplantation of parathyroids should be tried after the method of von Eiselsberg. The question of the operative treatment of epilepsy is discussed pro and con at considerable length without much headway being made, although the author is inclined to believe that operations should be done more frequently to relieve the slight leptomeningitis with serous effusion, which he thinks is often the cause of epilepsy. In hydrocephalus, lumbar puncture repeated at regular intervals is strongly recommended when the canals are not closed above, and tapping the ventricles and puncturing through the corpus callosum in other cases. The operative treatment of head injuries, tumors of the brain, and the various forms of neuralgia is thoroughly covered. The work closes with quite an extensive bibliography.

A NURSING MANUAL FOR NURSES AND NURSING ORDERLIES. By Duncan C. L. Fitzwilliams, M.D., Ch.M., F.R.C.S., Surgeon in Charge of Outpatients, St. Mary's Hospital. Cloth. Price, $2. Pp. 466, with illustrations. New York: Oxford University Press, 1914.

This book, the author hopes, will "increase medical knowledge among nurses, orderlies and Red Cross workers." As much of the first aid work falls to the share of the male nurses and orderlies, first aid in the field has been very fully dealt with, especially the various form of bandages, moving and lifting the injured singlehanded and with help, carrying by stretcher, improvising stretchers, loading and unloading the wounded, and artificial respiration. Except for these special subjects, the work differs little from other books on nursing.

CARE AND FEEDING OF THE INFANT. Practical Advice for Mothers and Nurses. By George D. Lyman, A.B., M.D., with an Introduction by Ray Lyman Wilbur, M.D., Dean of College of Medicine, Leland Stanford Jr. University. Cloth. Price, $1 net. Pp. 132. San Francisco: Paul Elder & Co., 1915.

This book is sound in principle, and the suggestions and advice are sensible and practical. The subjects concern rules for mothers during the prenatal period, the examination of the new-born infant, physical and mental development, the care of the new-born infant, infant feeding, the most frequent diseases of infancy, the training of the child, special directions for enemas, poultices, packs, etc., and a final chapter of modern formulas for the infant. The book is one which may be recommended to prospective mothers.

MOTHERCRAFT. By Sarah Comstock. Cloth. Price, $1. Pp. 214. New York: Hearst's International Library Company, 1915.

The articles making up this book appeared as a serial in *Good Housekeeping Magazine*. The author prefaces her work with an acknowledgment to numerous authorities whose names are listed. The book is one which can be recommended to a prospective mother. It is entertainingly written and well illustrated, and the scientific statements are shouldered by the authorities from whom the author has so casually borrowed.

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Medicolegal

Liability of Carrier Wrongfully Taking Away Injured Passenger

(Easler vs. Columbia Railway, Gas & Electric Co. (S. C.), 84 S. E. R. 417)

The Supreme Court of South Carolina affirms a judgment for $1,000 damages in favor of the plaintiff, a boy who, while a passenger on one of the defendant's cars and preparing to alight, was thrown to the ground and had his shoulder bones injured. The court says that the boy's mother, living hard by, came out to the scene, and, it was alleged, desired to take the boy into her house, but the conductor carried the boy to the end of the line and back into the city to the company's surgeon for treatment, as he was bound to do by the company's rules. He was treated by the surgeon and discharged for well. The defendant asked that the jury be instructed that there was no evidence in the case that would warrant them in giving any verdict on account of alleged negligent treatment on the part of the physicians employed by the defendant. It is true that if a carrier shall (1) employ a surgeon to treat a patient, (2) and if the surgeon be reasonably competent, (3) and if the service to the patient be gratuitous, and (4) if the surgeon neglect the patient, then the master is not liable for the ill consequences to the patient. In that case, if the carrier owed any duty, he performed it when he selected a reasonably competent surgeon. In that case the carrier, as the alleged master of the surgeon, is not held liable for maltreatment, and on the theory that he has no power to direct the surgeon about his work. But in this case there was testimony—denied by the defendant, it was true—that the boy was taken away from the mother against her consent. If that was true, and of it the jury judged, then there was evidence which warranted the jury in giving a verdict on account of the treatment of the physicians, using the language of the requested instruction. It may be the duty of the carrier to call a surgeon to serve an injured passenger in a sudden emergency; but it is not the duty of the carrier to do so when the natural guardian of the injured passenger is present and dissents. It is manifest that the defendant had no right to the custody of the boy against the mother's consent; the forcible taking of custody was in itself a wrong; the relation of carrier and passenger was not immediately terminated; and, if the boy was injured while thus in the defendant's custody, no matter if by a surgeon, then the company was liable for such injury. The carrier would not be allowed to deny that it inflicted the injury.

Insured Having Tumor of the Pituitary Body

(Van Woert et al. vs. Modern Woodmen of America (N. D.), 151 N. W. R. 224)

The Supreme Court of North Dakota affirms a judgment for the defendant, which was sued on a benefit certificate or policy of fraternal life insurance issued to the plaintiff's husband on an application made May 8, 1909. The court says that the undisputed testimony showed that in the year 1907 the insured's left eye became inflamed, presumably from flax chaff. On bandaging the eye, he discovered that he could not see well with his right eye. His condition growing no better, in the spring of 1908 he consulted a physician relative to his eyes, and the physician found that there existed a partial atrophy of the optic nerve, slight as to the left eye, and more pronounced as to the right eye. Later, the insured consulted specialists, and in the early summer of 1910 he was operated on for tumor of the pituitary body. He died about Aug. 31, 1911, the direct cause of his death being the tumor of the pituitary body. The expert on neural surgery who performed the operation mentioned testified that in his opinion the insured had been suffering from the tumor of the pituitary body for many years, and that it was in existence as early as 1907. The principal defense was that the policy was void because the answers made by the insured in his application, to the effect that he never had a tumor, and that he had not within the last seven years been treated by or consulted any person, physician or physicians in regard to his personal ailments were untrue, and that his untrue answers to such questions were breaches of the warranties contained in the application and beneficiary certificate. The court is of the opinion that, even though the applicant believed that the trouble with his eyes was only local, still the defendant had a right to a complete, truthful answer in order that it might make such further investigation as it deemed necessary. The applicant warranted that he had not consulted a physician within the last seven years, and that he was not suffering with a tumor. The undisputed evidence showed that both of these warranties were untrue. They were both material facts which increased the risk. The truth of the conditions warranted was a condition precedent to a recovery on the policy. Whether or not the applicant acted in good faith was immaterial.

Liability for Wrongful Detention of Patient in Hospital

(Cook vs. Highland Hospital et al. (N. C.), 84 S. E. R. 352)

The Supreme Court of North Carolina affirms a judgment, amount not stated, in favor of the plaintiff, who sued the hospital and its medical director for damages for alleged unlawful detention, etc. The court says that the defendants denied that any wrongful acts were committed by them, and contended that they had a right to do what was done because the plaintiff signed an agreement on her entrance that she would be subject to the rules and regulations of the institution, and that she could not be set at liberty without danger to herself. But the trial judge properly told the jury that the plaintiff could not thus surrender control of herself to another by signing a paper at her entrance into the institution. "Good faith" is not a defense to the recovery of compensatory damages when the jury finds that there was illegal restraint of liberty and compulsory massage and hypodermic injections and other physical treatment on a defenseless woman, who was in the absolute power of the defendants and kept immured under lock and key and with barred windows, without information given by them to her family of her condition, and she denied all communication with them.

The plaintiff was not committed as insane, and, if she had been, the defendants did not account for the fact that they accepted her as sane by signing the agreement with her on her entrance into the institution. If she subsequently became insane, it was the duty of the institution to have at once notified her mother and sister. The testimony of the defendants, however, was that she was not insane. Evidently the medical director believed that he had absolute control of the plaintiff and the right to imprison her if she opposed his orders or will, and the right to impose on her whatever treatment he thought best, and that the family need not be consulted any more than the plaintiff herself. The effect of being at the head of such an institution is very often—too often—to render the person in charge callous and autocratic, and in his own opinion irresponsible to any one.

In this land, the law guarantees liberty to every one, subject to restraint only in the modes provided by the law; and even then there is the right to review the conduct of those in charge of those deprived of their liberty. The plaintiff was not committed to the care of the defendants by any legal proceedings adjudging her insane, and her signing the paper agreeing to the rules and regulations of the institution was not irrevocable. It did not subject her to the irresponsible power and control of the defendants. If the plaintiff did not abide by her agreement to obey the rules and regulations of the institution, the remedy of the defendants was to discharge her or, if her condition forbade this, to notify her relatives, and not to imprison her and force her to do their will.

Instructions are approved, which told the jury, among other things, that, even though she went in under the paper above referred to, if she was found perfectly rational, and knew what she was doing—what she wanted and did not want—and she wanted to leave the institution, and expressed it to the hospital authorities, and they knew of that fact, and then

after that restrained her of her liberty, then it would be in law a wrongful detention, unless they were justified in restraining her under those rules of humanity and regard for her welfare which would permit her to be detained and restrained until reasonable apprehension of doing herself bodily harm had passed, if she was so nervous from any ailment or disease and so irrational that there was reasonable probability that, if released at the time, she would do herself some bodily harm.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, San Francisco, June 21-25.

American Assn. of Med. Milk Commissions, San Francisco, June 17-19.
American Academy of Medicine, San Francisco, June 25-28.
American Association of Anesthetists, San Francisco, June 21.
American Climatological and Clin. Association, San Francisco, June 18-19.
American Ophthalmological Society, New London, Conn., July 6-7.
Montana State Medical Association, Bozeman, July 14-15.
Nevada State Medical Association, Reno, June 17-19.
New Jersey Medical Society, Spring Lake, June 22-24.
Washington State Medical Association, Tacoma, July 20-22.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirtieth Annual Meeting, held at Washington, D. C., May 11-13, 1915

(*Continued from page 1939*)

Chronic Duodenal Ulcer

DR. WILLIAM J. MAYO, Rochester, Minn.: Published in THE JOURNAL, this issue, p. 2036.

Medical Cure of Gastric and Duodenal Ulcer by Means of Efficient Removal of Gastric Juice Corrosion

DR. B. W. SIPPY, Chicago: Published in THE JOURNAL, May 15, 1915, p. 1625.

DISCUSSION

DR. L. F. BARKER, Baltimore: Differences still remain between physicians and surgeons both as to diagnosis and to therapy. The diagnosis of duodenal ulcer is easy in typical cases and no one need mistake them. But medical men see so many cases of so-called hyperchlorhydria of a different type, that although Moynihan says these cases are all cases of ulcer, medical men are and will continue to be skeptical about it. In the doubtful cases we do find a real help in roentgenography and particularly in serial roentgenography. From chronic cholecystitis, chronic pancreatitis and chronic appendicitis the differentiation of duodenal ulcer is very difficult at times, and the findings at operation are often very disappointing. As to therapy, the question still is open. When there is hemorrhage, obstruction or perforation, surgery is, of course, our only proper recourse. But in milder cases we are in doubt; the gastrologists tell us that they see many recoveries under medical management. There may be some significance in the fact that more recent graduates in medicine suffering with this condition tend to be operated on, while the older men tend to prefer the medical treatment. Medical men and surgeons must continue to work together on this problem until the interchange of opinion and experience shall bring us at length to a conclusion.

DR. WILLIAM H. WELCH, Baltimore: As to the preponderance of duodenal over gastric ulcer, Dr. Mayo has made out his case — at least *for those cases coming under observation.* But these observations do not determine the percentage of incidence in all classes of cases. This is not the last word on this question of comparative incidence.

DR. FRANK BILLINGS, Chicago: Rosenow's work on the relation between infectious foci and ulcer, both of stomach and duodenum, will certainly receive more consideration in the etiology of these conditions than heretofore, and will be found to have a bearing on the nonhealing of ulcers. Moreover, it will be accepted that failure to treat infectious foci will invite recurrences of ulcer. Spasm and hypertrophy of muscle, together with infiltration of tissues as a contributing cause, may produce obstruction; this must be admitted; because from ulcers so situated that these factors cannot cause obstruction no such severe symptoms arise and thus no diagnosis is made except of hyperacidity. In watching Dr. Sippy's work, I have too often seen obstructive symptoms disappear to doubt that they can both originate in the way indicated and that they can be dissipated with the healing of the ulcer under medical management.

DR. A. MCPHEDRAN, Toronto: I would like to ask Dr. Mayo if it is not true that after gastro-enterostomy the gastric peristalsis is still toward the pylorus, and are not the duodenal tissues still bathed with gastric juice? I have observed on the fluoroscopic screen in several cases that this does take place: the bismuth stream could be observed to flow through the pylorus with an immediate reflux into the stomach and through the gastro-enterostomy opening. I believe the greatest benefit of the surgical short-circuiting is due to the prompt discharge of the stomach contents; and if this prompt discharge can be established by medical means in a given case, then surgery has no place for that case.

DR. E. LIBMAN, New York: Our experience at Mount Sinai Hospital with respect to the relative frequency of duodenal and gastric ulcer coincides with Dr. Mayo's. In the cases of chronic gallbladder and appendix disease with symptoms simulating duodenal ulcer, we find that remissions often occur; in true ulcer the symptoms are a continuous performance as a rule. Moreover, in the appendix cases, there may be pain in the left lower quadrant, which never occurs in ulcer.

DR. JULIUS FRIEDENWALD, Baltimore: We have found the relative percentage of duodenal and gastric ulcer to be from 52 to 48 per cent. in cases in which Dr. Finney operated. In duodenal ulcer, by roentgenography we find a hypermotility and a filling defect not present in gastric ulcer. Dr. Finney prefers pyloroplasty for the surgical treatment of this condition.

DR. C. F. HOOVER, Cleveland: There may be a difference between the case of locating ulcers on the distal side of the pylorus and the proximal side. Dr. Mayo's results were arrived at by the direct evidence of inspection of the serosa, inferentially concluding that the appearance of the serosa is a dependable index of the condition on the inside of the intestine. I recently saw a case of suspected duodenal ulcer in which no ulcer was found at operation, but in which afterward an enormous ulcer was found on the proximal side of the pylorus not indicated by any appearance on the serous surface. Thus gastric ulcers may be missed even after surgical inspection of the organ.

DR. S. SOLIS-COHEN, Philadelphia: I wish to protest against laying too much stress on hyperchlorhydria as a positive sign of ulcer either of the stomach or of the duodenum. Also, against accepting hypochlorhydria as conclusive evidence against ulcer. The work of Dreyfuss and Hawk shows that our methods of diagnosis must undergo revision, especially as regards our conceptions of the time of maximal secretion. Their study of the curve of secretion shows very great variations in the time of maximal secretion. The demonstration of hypermotility is a great aid in the diagnosis of duodenal ulcer, and I would strongly urge the personal observation by the physician of the gastric and duodenal movements on the fluoroscopic screen.

DR. LOUIS B. WILSON, Rochester, Minn.: I beg to call attention to two types of lesions of the gastroduodenal tract which evidently present unusual diagnostic difficulties. They may be illustrated by two cases: 1. A patient was operated on by a competent surgeon who explored the gastric and duodenal regions without finding ulcer. Later the patient was examined with negative findings by an eminent clinician. He came into the hospital at Rochester moribund. An ulcer of the duodenum was found 3 inches below the pylorus and almost occluding the lumen. 2. A second patient came to the hospital almost moribund and with practically the same history as in the first case. This patient died, and necropsy

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revealed cancer of the cardia. Thus it would seem that lesions involving the extreme limits of the ulcer-bearing area may readily escape observation even at operation.

DR. H. G. WELLS, Chicago: Dr. Mayo spoke of the recurrence of ulcer at the site of operation, especially after occlusion of the pylorus. Rosenow has studied experimental ulcer formation in Pawlow dogs, and has found that they tend to form at the point of operation. May it not be that the surgeon makes such a favorable site for ulcer formation if infectious foci are not attended to as part of the treatment?

DR. M. G. FUSSELL, Philadelphia: As has been said, physicians are constantly treating cases of so-called hyperchlorhydria. When such cases are thoroughly studied under careful dietetic management and with the aid of roentgenoscopy, they separate themselves into their proper classes: those that do not improve under medical treatment are regarded as surgical cases and by the competent physician are referred to the surgeon.

DR. WILLIAM J. MAYO, Rochester, Minn.: I wish to emphasize one settled conviction: If the surgeon cannot demonstrate the presence of an ulcer to the satisfaction of the clinician standing 10 feet away, such a stomach or duodenum should not be operated on. My practice is to excise gastric ulcers whenever possible; duodenal ulcers do not lend themselves so readily to excision. I have never known scar tissue in the duodenal or gastric mucosa to stretch any more than such tissue does elsewhere, but it is perfectly true that if obstructive symptoms are due to edema and muscle spasm alone, relief of the obstruction will follow any measure which will abate the edema and spasm. I have found, as have others, that in cases of acute perforation, when the opening is cleancut and recent, the patients recover with simple repair of the perforation, and some get well spontaneously; these ulcers have definite acute appearances and are probably of the type produced by Rosenow. They are unlike chronic ulcers. Those patients who recover under medical treatment should be given a chance to do so.

(To be continued)

AMERICAN GYNECOLOGICAL SOCIETY

Fortieth Annual Meeting, held at White Sulphur Springs, W. Va., May 18-20, 1915

(Concluded from page 2016)

A Precise Method of Choosing a Time for Operation in Pelvic Inflammation of Tubal Origin

DR. FRANK F. SIMPSON, Pittsburgh: The questions of mortality, or postoperative morbidity, and the smoothness of convalescence depend almost entirely on a strict adherence to the following postulates: 1. The patient shall have recovered from her acute illness and shall have regained a satisfactory margin of reserve strength. 2. The temperature shall not have risen above normal a single time for a minimum period of three weeks. 3. There shall have been no marked or persistent rise of temperature following a careful bimanual examination. 4. The inflammatory exudate surrounding the focus of infection shall have been completely absorbed.

DISCUSSION

DR. JOSEPH BRETTAUER, New York: Not only do we minimize the death rate by conservative measures, but we decrease the number of patients for whom we find an operation necessary. Many of these patients do not need an operation in the case of purulent collection in the tubes or in abscess formation. The pathologic and anatomic end-results are a tubo-ovarian cyst, a closure of the tube with adherence of the ovary, and breaking through of the follicle into the tube with a resulting tubo-ovarian cyst, which, in many instances, never requires an operation as there are no symptoms, and it is detected often by mere accident.

DR. JOHN O. POLAK, Brooklyn: I applied the plan that has been outlined by the essayist eight or nine years ago and followed it to the degree of overconservatism, but I think I have saved hundreds of organs. I have been surprised to find later how perfectly the pelvis has regenerated, not only as regards functional ability, but also as to the actual possibilities. For instance, I have seen cases after three or four years absolutely clear up, and pregnancy has occurred after mixed infection.

DR. THOMAS J. WATKINS, Chicago: Sometimes it seems of value to operate very soon after these patients have acquired a complete immunity to the infection, taking the temperature and the white count with the idea that there will be some advantage in operating before the adhesions become thoroughly organized. The increased amount of raw surface resulting from operating as soon as immunity has occurred is much greater than the raw surface which remains after operating, if the adhesions have become somewhat organized so as to make the advantage in favor of the later operation. The number of adhesions encountered in operating at an earlier period are undoubtedly greater, many of them being absorbed more readily than they are during a later period.

DR. J. WESLEY BOVÉE, Washington, D. C.: As soon as Dr. Simpson told me of his method of treatment, I adopted it, and in conjunction with the leukocyte count, I have followed it very thoroughly except in two classes of cases. In the tubercular cases I would operate at once. In the other class I have markedly gone afield, and that is in the acute gonorrheal cases. I am not yet ready to report on my work in this regard. I have not seen the abdominal conditions after this procedure, but I have sterilized the vagina and vulva with iodin and the interior of the uterus by injecting it, the vagina and fallopian tubes, opening the abdomen, separating adhesions, painting all raw surfaces, except normal peritoneum, thoroughly with iodin, putting in drains down to the culdesac before I opened the abdomen, and then draining through the culdesac of Douglas, and I have been pleased with the results. I have done this in the acute cases with a temperature of 103.6 F. For the cases that are more subacute and with lower temperature, I do not think the plan is feasible.

DR. H. S. CROSSEN, St. Louis: One has more or less difficulty to determine when to operate on a mass that has passed the acute stage and is in the subacute or chronic stage. It may be two months or two years since the acute infection took place, and it is a question whether or not to do an abdominal operation. We can often determine a gonorrheal infection, and it is safe to operate within three months afterward or two months after sterilization. If it is a streptococcus infection, it is never safe. Streptococci masses are in many instances found self-sterilized. On the other hand, there have been other cases reported in which the infection has lasted as long as six or even twelve years.

Diagnosis of Ectopic Gestation

DR. GEORGE TUCKER HARRISON, Charlottesville, Va.: One error of diagnosis must be guarded against carefully, and that is to assume that the case is one of hematocele. Such a case I reported some years ago. The deep situation of the fetal sac in Douglas' culdesac and the rough, uneven surface above simulated the characteristic phenomena of an accumulation of blood in the posterior pelvic cavity. Before I saw the woman she had suffered from a chill, followed by fever. When she came under my observation the temperature was 105 F. My diagnosis was infected hematocele. A posterior colpotomy was performed, and on the finger entering the cavity, a 4-months fetus was discovered. Through fear of a fatal hemorrhage, the placenta was not removed, but treated by continuous irrigation. The patient ultimately made a good recovery.

DISCUSSION

DR. ARTHUR H. CURTIS, Chicago: In the diagnosis of tubal pregnancy, I want to mention enlargement of one ovary due to the presence of a corpus luteum. This enlargement in the case of tubal pregnancy is often no greater than is that in association with normal menstruation, but the ovary is noticeably enlarged and feels about double the normal size.

DR. PHILANDER A. HARRIS, Paterson, N. J.: One should not place too much reliance on the physical examination of the pelvis in any stage of pelvic congestion. Ectopic gestation is likely to present varied conditions and symptoms in different patients. The important thing in order to make a diagnosis of the condition, is to get the primary history as well as the initial symptoms of ectopic gestation.

DR. HERMAN J. BOLDT, New York: A condition which makes the diagnosis difficult is a virulent inflammation of the adnexa. No condition, so far as the history and the objective symptoms go, is so likely to lead to error in diagnosis as that.

Types of Carcinoma of the Uterus

DR. LAWRENCE W. STRONG, New York: It is customary to call a carcinoma which adheres to the glandular form an adenoma destruens and to speak of the secondarily solid one as adenocarcinoma. This leads to the idea that an adenoma destruens is not a carcinoma in the true sense, while in reality it is a carcinoma from the start. Adenocarcinoma is a rather poor term because it suggests a combination of adenoma and carcinoma. Carcinoma glandulare is the best designation for this type. Benign adenomas of the uterus do not exist, except in the form of adenoma polyposum. Glandular tumors not on the surface are carcinomas from the start. A wedge-shaped excision including normal tissue is to be preferred for a diagnostic specimen in suspicious cases of carcinoma colli. A frozen section is not desirable in collum carcinoma, since a suitable piece may be removed without anesthesia a few days prior to the operation, allowing careful embedding. No likelihood of implantation metastasis will result in the few days intervening. The objections to frozen sections at operation in suspected collum carcinoma are those of frozen sections in general. In the case of curettings from the corpus, a frozen section should never be attempted. The tissue is too frail for manipulation, and gross inspection is a reliable factor in interpretation.

DISCUSSION

DR. JOHN G. CLARK, Philadelphia: As one realizes the enormous changes which the endometrium undergoes during the twenty-eight cyclic days, the variations are so extreme and so closely simulate in many instances pathologic processes, that the mere question of a hasty diagnosis by frozen section while the patient is on the table is a hazardous one, and will do as much harm as good.

DR. FREDERICK J. TAUSSIG, St. Louis: At the Barnard Cancer Hospital we have had 150 cases of cancers of the female genital tract in ten years. Fully three fourths or four fifths of the cases were invariably late cancers. We did not find more than two or three cases in which the tumor lay primarily in the corpus or body of the uterus. We have had cancers of the cervix which have gradually extended up into the fundus, but of cases that started in the fundus and made a large tumor and broke into the peritoneal cavity, we have not had more than two or three cases.

DR. HERMAN J. BOLDT, New York: The unreliability of frozen sections was brought home to me three or four years ago in a case in which I suspected the presence of carcinoma. I sent a piece of the tissue to the laboratory and waited for the report. This was to the effect that we had a benign condition and I did not do anything, except the plastic work which was necessary. A week or ten days later the laboratory sent a report with an apology for having made an error in diagnosis, based on the frozen section. The condition was malignant, and I had to do a more difficult operation than I would have done at the start.

Bladder Function After Confinement After Gynecologic Operations

DR. FREDERICK J. TAUSSIG, St. Louis: While there are gradations of deficiency in bladder function after confinement and operation, we can for practical purposes divide patients into four groups: 1. Those who show at such times no appreciable difference from normal micturition. 2. Those who, while able to void urine spontaneously, do not for a day or two empty their bladder completely. 3. Those who require catheterization one or more times in the first few days, but are then able to void urine without further trouble. 4. Those with prolonged interference of bladder function, who, even when finally able to void urine after several days of catheterization, are able to expel only a part of the bladder contents. The character of the operation, the form and amount of the anesthetic, the age of the patient, the nervousness of the individual, and the degree of sensitiveness of her bladder mucosa are all factors that to a greater or less extent come into play in producing urine retention, and the object of the gynecologist should be to regulate his therapy as far as possible in accordance with the probable factors in his case.

Laboratory Diagnosis of Chronic Infections of the Urinary Tract in Women

DR. ARTHUR H. CURTIS, Chicago: Chronic infections of the urinary tract can best be diagnosed by one who is actively engaged both in clinical work, including cystoscopy, and in laboratory study. Careful correlation of clinical findings and laboratory methods, with extensive modifications in cultural technic to meet individual cases, is essential. The source of even small amounts of pus in the urine should be investigated; the place of its formation should be definitely localized through the assistance of ureteral catheterization. Persistent pyuria in the absence of a gross bladder lesion is almost invariably due to kidney disease. In those frequent cases of bladder irritability which yield clear, bacteria-free urine, cultures from the traumatized ureteral canal, or from the introduction of a probe into Skene's ducts, may demonstrate the cause of infection. When bacteria are widely scattered or grow with difficulty, a mixture of the urinary sediment with blood followed by making a large number of ascites-blood agar tubes, of high dilution, result in conditions favorable for the development and isolation of the bacteria present. Experience teaches that the chief lesions in urinary tuberculosis are usually renal. In obscure cases, laboratory diagnosis is facilitated by the use of potassium iodid, tuberculin, kidney massage, limitation of liquids, repeated examinations of fresh specimens after high power centrifugation, Petroff's cultures, and the injection of a series of medium-sized guinea-pigs. There is seemingly a tendency to put undue stress on functional urinary tests at the expense of careful routine examination.

Use of the Galvanocautery Knife for Excision of Mammary Tumors for Microscopic Diagnosis

DR. J. WESLEY BOVÉE, Washington, D. C.: Shortly after installing the Downes electrothermic angiotribe in 1903, I began experimenting with it in the treatment of the uterus and of the breast. For galvanocauterization of the advancing cervical cancer, I devised a cooling vaginal speculum that has proved very efficient, and in breast tumors localized and only suspicious of malignancy, I apply the galvanocautery for excision of the growths, or removal of portions of doubtful tumors for microscopic examination.

In this work, carried out in many cases, I have found but one objection when properly used. This consists of the slowness of the cautery knife when the breasts have been large. This led me to change the technic somewhat. To economize in time I adopted the plan of cutting the tissues for a short distance with a sharp knife, and with the flat sides of the cautery knife, immediately sealing to a considerable depth the sides and bottom of the wound. The use of the knife is again resumed, to be followed by the cautery as before. This process has been continued until the tissue desired is entirely removed, leaving behind a crater with charred boundaries. The hot oil that is fried from the tissues during this procedure is taken up promptly with small pledgets of cotton or gauze in the grasp of forceps and at once discarded. The wound is now covered carefully and the report of the microscopic investigation awaited. If the tissue is reported to be malignant, a radical operation

is at once performed. If it is reported to be benign, the surgeon may yet decide, from a consideration of the clinical evidence, to perform a radical operation. If the operation is not to be extended, the wound margins are trimmed of all cooked tissue and the proximal portions of severed milk ducts, and the wound closed completely with sutures. The J. Collins Warren operation I have performed entirely with the knife and cautery with satisfactory results.

The Treatment of Pyelonephritis in Pregnancy

DR. RALEIGH R. HUGGINS, Pittsburgh: Experiments lead to the conclusion that ascending infection reaches the kidney through the lymphatics more frequently than was formerly supposed. If this is correct, much may be learned from a careful search for the primary focus. This may be found in the bladder itself. Owing to the intimate relationship between the lymph system of all abdominal viscera, and that of the kidney, the primary infection may lie in the fallopian tubes, appendix or the gallbladder. In severe cases, the diagnosis is usually made without difficulty. The evidence of toxemia, high leukocytosis, and pus in an acid urine, with the presence of colon bacilli in pure culture, are symptoms which are most suggestive. When pain is a prominent feature, pleurisy, infection of the gallbladder, salpingitis, or stone in the ureter or kidney must be excluded. There is usually a pronounced rise in the temperature, and chills. If not contraindicated, cystoscopy with catheterization of the ureters has the same field of usefulness here as a diagnostic measure that it has in the nonpregnant. The important factor in the recognition of this complication of pregnancy is to remember that in the presence of the foregoing symptoms it is the condition most likely to be found. The treatment in some instances requires careful judgment. The mild cases are usually self-limited and respond to rest, proper diet and urinary antiseptics. Irrigation of the pelvis of the kidney should be done if the infection does not yield to simple measures. Severe pyelitis is always a danger for both mother and child, and if the clinical manifestations do not subside promptly under this treatment, then one must consider nephrotomy or the interruption of pregnancy. When surgical measures are not employed in some manner, death not infrequently occurs.

Postoperative Renal Infection

DR. GEORGE GRAY WARD, New York: Many instances of obscure and apparently unaccountable elevation of temperature, with concomitant symptoms of septic absorption occurring later in the course of a postoperative convalescence, are cases of renal infection, and they are much more frequent than was formerly believed. In the majority of cases, these renal infections are of hematogenous origin and are due to the colon bacillus. In studying the reports of cases of this disease, one is struck with the frequency with which they follow some operative procedures. The evidence and research tend to prove that the large majority of such renal infections are hematogenous in origin, although some cases may be caused by an ascending infection, either by way of the periureteral lymphatics or by extension up the lumen of the ureter. There are three types of infection, depending on the degree of virulence. They are: 1. Cases which are mild in character. The patient is not severely ill and yields to the thorough flushing of the kidneys by the ingestion of water, formaldehyd, proper diet and rest. The virulence naturally varies according to the particular organism, the condition of the kidney, and the general bodily resistance of the patient. 2. Cases in which the kidneys contain numerous septic infarcts, and minute or microscopic foci which are superficially situated in the cortex of the organ. Decapsulation or incision with drainage usually results in recovery. 3. The fulminating type which is characterized by a profound toxemia, and which is rapidly fatal unless a nephrectomy is done. Fortunately this type of the disease is usually unilateral. If operation is necessary, nephrectomy should not be done unless there are indications for it, as shown by the appearance of the kidney. A decapsulation or nephrectomy with drainage is sufficient in many cases, especially in the colon bacillus infections.

AMERICAN PEDIATRIC SOCIETY

Twenty-Seventh Annual Meeting, held at Lakewood, N. J., May 24-26, 1915

The President, DR. GEORGE N. ACKER, Washington, D. C., in the Chair

Cubic Air Space for Institutional Bottle-Fed Infants

DR. THOMAS S. SOUTHWORTH, New York: The majority of hospital and institutional wards for infants provide 1,000 cubic feet and upward of air space for each infant, and only a few report 600 or less. Ventilation is deemed as important as air space. No allowance of air space is made for the attendants. Separation of the beds plays as large a rôle in limiting the spread of infections as does air space. Bottle-fed babies require more air than nursing babies, and as much as sick babies. Infants, especially bottle-fed infants, should have as much air space as adults, or more. Bottle-fed infants, when retained in institutions for a considerable length of time, cannot be considered as well. Limited air space, involving limited floor space, is an important contributing factor in the morality of artificially fed infants. Free ventilation is also of great importance to the well-being of infants. The mere presence of windows does not constitute ventilation. The example of the more progressive institutions is nullified by state and local regulations licensing those with a minimum air space, in which there is a high mortality.

DISCUSSION

DR. L. EMMETT HOLT, New York: Is it preferable to have large hospitals especially for the care of children, particularly young children, or to have children cared for in special wards of large general hospitals? It is hard to get the authorities in general hospitals to realize that children need about twice as many nurses as adults.

DR. ROWLAND G. FREEMAN, New York: Children cannot get well, no matter how much air space there is, if they do not have plenty of freely moving air. The advantages of a general hospital are that there are better facilities for doing good work, and that contact with the men working in other departments often leads to the adoption of methods for treating children that have been found successful with adults.

DR. L. E. LAFETRA, New York: At Bellevue Hospital, it has been found that the babies in the ward do better, the fewer there are, and I think that this is because each nurse, having fewer cases to attend to, can give more individual attention to each. There is often inadequate nursing at night in children's wards connected with general hospitals.

DR. S. MCHAMILL, Philadelphia: If the managers of general hospitals could be induced to provide the proper conditions, I see no reason why children could not be as well cared for in the wards; but I know of no general hospital that has a sufficient number of wards to provide for all classes of cases in children.

DR. HENRY L. COIT, Newark, N. J.: The reason that an artificially fed infant needs more cubic air space than one that is breast-fed is that the former, often with a subnormal temperature, with no capacity to generate heat, radiates heat from its body more freely.

DR. FRITZ B. TALBOT, Boston: Artificially fed infants require a higher temperature because they are not making enough fuel to keep warm.

DR. SAMUEL S. ADAMS, Washington, D. C.: At our institution, we have the mothers come each afternoon and take their children out for an airing. If you cannot get what you want for the babies from the men in charge of a hospital, explain their needs to the ladies' board, and you will usually get what is required.

Parapharyngeal Abscess as Distinguished from Peritonsillar and Retropharyngeal Abscesses

DR. HENRY HEIMAN, New York: There occurs, especially in children, a form of abscess occasionally mistaken for retropharyngeal abscess, which is really a parapharyngeal abscess, as its site is in the lateral column. It originates in the superior chain of the deep cervical glands, as distin-

guished from the retropharyngeal glands. These abscesses, as a rule, are cured only by external operation.

DISCUSSION

DR. WILDER TILESTON, New Haven, Conn.: Last winter I saw a case of parapharyngeal abscess in which the abscess perforated internally and was cured without external incision.

DR. THOMAS S. SOUTHWORTH, New York: There is a peculiar feeling that characterizes peritonsillar abscess. The impression of a vague swelling, without any particular outline, always suggests abscess in the throat.

DR. L. E. LA FETRA, New York: I have seen many abscesses that are not peritonsillar abscesses in the ordinary sense, accompanied by a swelling on the outside. These could be opened from within. They frequently subside, if given time and treated with hot irrigations of the pharynx.

Ductless Gland Therapy

DR. ROYAL S. HAYNES, New York: In cases of cretinism it is wise to investigate the condition of the pituitary gland. The striking thing in the therapy is the fact that symptoms that might have been due to hypothyroidism clear up under the administration of pituitary gland. In a case of mine there was a striking change in the contour of the hands, ankles, hips, buttocks, thighs and shoulders that could be made to appear or recede by giving or taking away pituitary gland. The effect produced on the child's disposition was also striking. Pars intermedia therapy likewise seems to have done something. We have come only part of the way in this individual case, and these conclusions are merely preliminary.

DISCUSSION

DR. CHARLES HERRMAN, New York: Very frequently more than one gland is attacked. I have been using a tablet containing extracts of three glands, the thyroid, suprarenal and pituitary. I have secured better results in these cases than when thyroid alone was used.

Energy Metabolism of a Two Months' Old Child Fed on a Prolonged Protein-Rich Diet

DR. S. RAYMOND HOOBLER, Detroit: Protein retained for growth causes no increase in metabolism. Oxidized protein does cause an increase in metabolism, varying with the amount oxidized. The cause of this increased metabolism of protein is the stimulation produced by the amino-acids and their products derived from protein decomposition. When large amounts of protein are fed, with insufficient carbohydrate and fat, even though ample calories to cover the caloric need may have been given, there is a drain on the fat and carbohydrate stored in the body. Protein food, though greatly in excess, cannot be substituted for needed fat and carbohydrate. The proportion fed, as advised and taught, is much in excess of the need.

DISCUSSION

DR. JOHN HOWLAND, Baltimore: In some work which I did, I was able to show that protein not only produced an excess of heat by being itself consumed, but that, it being impossible to store more than a certain amount of it in the body, it also acted as a stimulus to general metabolism.

DR. FRITZ B. TALBOT, Boston: When the protein is increased in raw cow's milk, the visible symptoms of protein indigestion come on much sooner than when other forms of protein are added.

Total Nonprotein Nitrogen and Urea of Blood, and the Phenolsulphonephthalein Excretion in Infancy and Childhood

DRS. WILDER TILESTON and CHARLES W. COMFORT, New Haven, Conn.: The phenolsulphonephthalein excretion is somewhat higher in children than it is in adults, and the nonprotein nitrogen and the urea both show less tendency to increase in disease. The practical importance of this lies in the direction of prognosis and treatment. It is an important guide to the diet in nephritis, such as is found in scarlet fever. If the nitrogen is high, it is necessary to restrict the diet; but if one finds normal nitrogen, it is possible to allow more latitude in the diet. From analogy to adults, it seems probable that rising nitrogen will indicate some danger of uremia.

DISCUSSION

DR. JOHN LOVETT MORSE, Boston: We have found the phenolsulphonephthalein excretion higher in health in children than in adults. We have also found it little interfered with in a number of cases of nephritis.

DR. ROWLAND G. FREEMAN, New York: One child with severe nephritis passed only 3 per cent. of phenolsulphonephthalein in two hours, but he has practically recovered. That could scarcely occur in an adult.

DR. HENRY KOPLIK, New York: A low phenolsulphonephthalein excretion is not inconsistent with complete recovery. There may be severe nephritis in children with quite a good phenolsulphonephthalein excretion—65 per cent. in two hours. On the other hand, we had an exception as low as 30 per cent. in a severe case of pyelitis with complete recovery. The test should be made before subjecting a child with nephritis to a surgical operation.

DR. WILDER TILESTON, New Haven, Conn.: I saw a case of nephritis in an adult last year. The phenolsulphonephthalein excretion was zero, yet the woman recovered. The test shows the function of the kidney only at the time it is made.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

May, XV, No. 5, pp. 793-944. Part II.

1 *Respiration Calorimeter for Study of Disease. G. Lusk, New York.
2 *Respiration Calorimeter of Russell Sage Institute of Pathology in Bellevue Hospital. J. A. Riche and G. F. Soderstrom, New York.
3 *Organization of Small Metabolism Ward. F. C. Gephart and E. F. DuBois, New York.
4 *Determination of Basal Metabolism of Normal Men and Effect of Food. F. C. Gephart and E. F. DuBois, New York.
5 *Measurement of Surface Area of Man. D. DuBois and E. F. DuBois, New York.
6 *Absorption of Fat and Protein in Typhoid. W. Coleman and F. C. Gephart, New York.
7 *Calorimetric Observations on Metabolism of Typhoid Patients With and Without Food. W. Coleman and E. F. DuBois, New York.
8 Diabetic Respiratory Quotient. G. Lusk, New York.

1. **Respiration Calorimeter for Study of Disease.**—The story of the Atwater-Rosa-Benedict calorimeter is told by Lusk in brief, comprehensive, perhaps one might say semi-popular language. The calorimeter has been successfully used in many experiments on dogs and babies. For the first time direct and indirect calorimetry were found to agree during hourly periods of experimentation.

2. **Respiration Calorimeter of Russell Sage Institute of Pathology.**—The original Atwater-Rosa respiration calorimeter with the improvements added by Benedict, Williams and others has been adapted for clinical study in Bellevue Hospital. The form of the apparatus makes it perfectly comfortable for patients. The accuracy is such that in observations lasting three or four hours the heat production, carbon dioxid elimination and oxygen consumption as determined by alcohol and electric tests can be measured with an average error of 0.9 per cent., 0.6 per cent. and 1.6 per cent., respectively. In periods one hour long the average error for heat measurement was 1.2 per cent., for carbon dioxid 1.6 per cent. and for oxygen 3.2 per cent. The calorimeter never needs more than three men for its operation, and two men have repeatedly made all the readings and all the calculations in hourly periods.

3. **Organization of Small Metabolism Ward.**—The method of collecting twenty-four-hour specimens of urine, described

by Gephart and Du Bois, is a new one. A large number of 20-ounce, round, wide-mouthed bottles with cork stoppers are kept in the ward. These have been etched on the side so that one can write on them with a pencil. At 5 a. m., the time at which the twenty-four-hour period ends, each patient is given a bottle and made to empty his bladder. The bottle is then marked with his name, the date, the hour and minute. The volume is estimated for clinical purposes by comparison with a calibrated bottle of the same capacity. The data are then recorded on a special slip of paper to go to the laboratory and also on the diet chart. A little toluene is added to the urine bottle, which is corked and stored in the ice-box along with the previous voidings of that twenty-four-hour period, each voiding being in a separate bottle. At about 9 o'clock in the morning the laboratory man checks up the bottles with the records on the laboratory slip, and with the nurse's notes takes all the bottles to the laboratory, measures the volume accurately, makes up to volume and analyzes a sample.

The collection of feces is somewhat more difficult. Patients who can get out of bed defecate into a weighed bucket in the commode. This bucket is then weighed again. A little formalin is added and the whole sent to the laboratory where the specimen is thoroughly mixed and one-tenth removed to be dried and added to the other aliquot portions of that period and analyzed. Bedridden patients use a weighed bed pan from which the feces are transferred to a covered bucket for transportation. Most of the patients with acute diseases are given every morning an enema of hypertonic salt solution. To divide the periods, powdered carmin (0.3 gm., 5 grains) is given with the first meal of the period and with the first meal after the period is ended. Experience has shown that it is much easier to determine the exact point of appearance of the carmin in the feces than to find the point of disappearance. When patients are being given enemas it is easier to discover traces of carmin than traces of charcoal. Periods are made as long as possible to minimize the errors of division.

4. **Determination of Basal Metabolism of Normal Men and Effect of Food.**—Seven normal men were studied by Gephart and Du Bois with and without food, as controls for the observations on patients in the metabolism ward. Their average basal metabolism (at perfect rest, fourteen to eighteen hours after their last meal) was 34.8 calories per hour per square meter of body surface. The average basal metabolism of eighty-nine normal men studied by Benedict, Emmes, Roth and Smith was 34.7 calories. The average of the seven men studied in the Sage bed calorimeter in Bellevue and of the five men studied in Benedict's bed calorimeter in Boston was 34.2 calories. As a result the authors have adopted the figure of 34.7 calories per square meter of the body surface as the average heat production of normal men between the ages of 20 and 50 years.

All of the subjects studied in the bed calorimeter were within 11 per cent. of this average. Of the seventy-nine men of normal figure between the ages of 20 and 50 studied by Benedict and collaborators, 86 per cent. were within 10 per cent. of the average and the remainder between 11 and 15 per cent. If therefore, the heat production of a given subject suffering from some pathologic condition is more than 10 per cent. above or below the average it may be regarded as abnormal, but cannot be proved abnormal unless the departure from the average is at least 15 per cent.

Groups of men of weights between 45 and 85 kilograms show a mean heat production within 2 per cent. of the average according to surface area. According to calories per kilogram of body weight the group weighing between 75 and 85 kg. produces 7 per cent. less than the average figure and the group between 45 and 55 kg. produces 9 per cent. more than the average. The conclusion is therefore drawn that among groups of men of varying weights metabolism is proportional to surface area according to Rubner's law and is not proportional to body weight. By using the surface area as a basis one can refer all individuals to a single average normal figure, 34.7. If one uses the body weight as a basis a different normal figure is required for each weight.

5. **Measurement of Surface Area of Man.**—This discussion of the relationship of metabolism to surface area has been based almost entirely on Meeh's formula as determined in 1879. Subsequent observers have found a consistent plus error in this formula amounting to as much as 36 per cent. in the case of very fat individuals. The surface area of the various parts of the body can be determined as follows: A mold of the surface is made by pasting paper over tight-fitting underwear. The area of the mold is then determined by cutting it in pieces, printing a pattern on photographic paper, cutting out the pieces of the pattern and weighing them. To determine the area of each part of the body by linear measurements alone a formula has been devised by the authors on the principle of length times the average breadth times a constant. The sum of these parts gives the total surface area of the body. Five individuals of widely varying shapes have been measured by the Du Boises and the surface area as calculated from the formulas compared with the surface area as actually measured. In the five cases the average error was 1.7 per cent.

6. **Absorption of Fat and Protein in Typhoid.**—The feces of seven typhoid patients on the high calory diet were analyzed by Coleman and Gephart for fat and protein in seventeen periods of from three to twelve days each in length. The average total fat loss for all the periods was 6.25 gm., corresponding to a percentage loss of 4.3 per cent. No differences were observed in the percentage absorption of fat in the early and later stages of the fever or up to the end of the first week of convalescence, when the intake was relatively large. The average total nitrogen loss for all the periods amounted to 1.57 gm., corresponding to a percentage loss of 11.2 per cent. The constant presence of fat and nitrogen in the feces, even in fasting, vitiates to some extent the validity of the results when expressed in percentages.

7. **Calorimetric Observations on Metabolism of Typhoid Patients.**—The heat production of typhoid patients was measured by Coleman and Du Bois by the methods of direct and indirect calorimetry in a series of sixty-one experiments. The two methods agreed closely, the total divergence being 2.2 per cent. and the average divergence in the individual experiments being 5 per cent. This and the entire absence of abnormal respiratory quotients indicate that in typhoid protein, fat and carbohydrate are oxidized to the same or approximately the same end products as in health, and in their oxidation give off the standard amounts of heat. Therefore the law of the conservation of energy applies to fever patients. The rectal temperature does not always give an accurate indication of the average change in body temperature, and better results are often obtained by well covered surface thermometers. The basal heat production rises and falls in a curve roughly parallel with the temperature. At the height of the fever it averages about 40 per cent. above the normal but in some cases rises to more than 50 per cent. above the normal. The specific dynamic action of protein and carbohydrate is much smaller in the febrile period of typhoid than in health and in some cases seems to be absent. In convalescence it may be greater than normal. In a majority of cases a rise in temperature is accompanied by an increasing heat production and an increasing heat elimination. Typhoid patients can store body fat on an abundant diet while losing body weight and body protein. Loss in weight and loss of protein are usually though not necessarily parallel. There is a toxic destruction of protein in typhoid. This is shown by the fact that patients have a distinctly negative nitrogen balance on a diet which contains more than enough calories to cover the heat production.

Journal of Biological Chemistry, Baltimore

May, XXI, No. 1, pp. 1-390

9 *Studies on Theory of Diabetes. Study of Narcotic Drugs in Phlorhizin Diabetes. W. D. Sansum and R. T. Woodyatt, Chicago.

10 Cholesterol Metabolism of Hen's Egg During Incubation. J. H. Mueller, New York.

11 Estimation of Lipoid and Acid-Soluble Phosphorus in Small Amounts of Serum. I. Greenwald, New York.
12 Several Factors of Acid Excretion in Nephritis. L. J. Henderson and W. W. Palmer, Boston.
13 Retention of Alkali in Nephritis. W. W. Palmer and L. J. Henderson, Boston.
14 Estimation of Non-Protein Nitrogen in Blood. I. Greenwald, New York.
15 Determination of Nitrogen by Kjeldahl-Folin-Farmer Method. V. J. Harding and F. H. S. Warneford, Montreal, Canada.
16 Determination of Sulfofying Power of Soils. P. E. Brown and E. H. Kellogg, Ames, Ia.
17 Does Butter-Fat Contain Nitrogen and Phosphorus? T. B. Osborne and A. J. Wakeman, New Haven, Conn.
18 *Studies on Physiology of Reproduction in Domestic Fowl. On Failure of Pituitary Extract Body (Anterior Lobe) to Activate Resting Ovary. R. Pearl and F. M. Surface, Orono, Me.
19 Quaternary Salts of Hexamethylene-Tetramine. Monohalogenacylated Aromatic Amines and Their Hexamethylene-Tetraminium Salts. W. A. Jacobs and M. Heidelberger, New York.
20 Id. Monohalogenacylated Simple Amines, Ureas and Urethanes and Hexamethylene-Tetraminium Salts Derived Therefrom. W. A. Jacobs and M. Heidelberger, New York.
21 Further Experiments on Relative Effect of Weak and Strong Bases on Rate of Oxidations in Egg of Sea Urchin. J. Loeb and H. Wasteneys, New York.
22 Development of Alkalinity in Glomerella Cultures. H. S. Reed and J. T. Grissom, Blacksburg, Va.
23 Gastro-Intestinal Studies. Method for Quantitative Estimation of Trypsin in Gastric Contents. W. H. Spencer, Philadelphia.
24 Effect of Acid Administration on Parathyroid Tetany. D. W. Wilson, T. Stearns and J. H. Janney, Jr., Baltimore.
25 Influence of Certain Vegetable Fats on Growth. E. V. McCollum and M. Davis, Madison, Wis.
26 *Starvation and Obesity, with Special Reference to Acidosis. O. Folin and W. Denis, Boston.
27 Perca Globulin. O. Folin and W. Denis, Boston.
28 Defense of Folin-Farmer Method for Determination of Nitrogen. O. Folin, Boston.
29 Creatinin and Creatin Determinations. J. L. Morris, St. Louis.
30 Studies of Autolysis. Accelerating Effect of Manganous Chlorid on Liver Autolysis. H. C. Bradley and M. Morse, Madison, Wis.
31 *Influence of Natural Fats on Growth. T. B. Osborne and L. B. Mendel, New Haven, Conn.

9. **Narcotic Drugs in Phlorhizin Diabetes.**—It is concluded by Sansum and Woodyatt that their experiments offer no evidence that acetaldehyd is itself convertible into glucose or capable of promoting any new formation of sugar, which is in harmony with the observations of Friedmann that in liver perfusion experiments acetaldehyd is an acetone former, and not a sugar former. It is also concluded that the hypothesis that acetaldehyd promotes a new formation of sugar from fat has no more support than that which assigns to epinephrin a similar power. The hypotheses of antiketogenesis and diabetes which are based on the assumption that acetaldehyd promotes a new formation of sugar from fat are wholly untenable.

18. **Physiology of Reproduction in Domestic Fowl.**—From the evidence presented by Pearl and Surface it appears that the substance of the anterior lobe of the pituitary extract body of the cow, when injected into the abdominal cavity of hens in which the ovary is in a completely resting condition, does not cause an activation of the ovary, in the sense of inducing ovulation at an earlier date than that at which it would normally occur.

26. **Starvation and Obesity.**—Folin and Denis report on the fasting metabolism of two extraordinarily fat women, both essentially normal except with reference to their obesity. The analyses included practically all the determinable urinary constituents (except the metals), but chief interest concerned the acetone bodies. The results obtained suggest, however, that one perfectly safe, rapid and effective method of reducing the weight of very obese persons is by a series of repeated fasts of increasing duration, using the ammonia or *B*-oxybutyric acid elimination as a guide to the length of each fast. Two conclusions with reference to the nitrogen elimination suggested themselves: First, that the obese destroy less body protein during moderate periods of starvation than others; and, secondly, that with repeated fastings their adaptation to the complete utilization of body fat, which was indicated by a retarded and diminished excretion of actone bodies, is also accompanied by a sparing of the body protein.

It is concluded that obesity is not a predisposing or contributing factor in the onset or intensity of the acidosis of starvation. The total acetone excretion with the breath in starvation is quantitatively insignificant (at most 1 gm. per day), and the notion, current among clinicians that they can smell acetone "all over the room" when a case of acidosis is present, is erroneous. By repeated fasts of moderate duration the obese acquire an increased ability to starve without the production of acetone bodies. The obese lose less body protein than others in the course of moderate periods of starvation (four to six days) and on repeating the fasts the losses of body protein become still smaller. Successive moderate periods of starvation constitute a perfectly safe, harmless and effective method for reducing the weight of those suffering from obesity.

31. **Influence of Natural Fats on Growth.**—The new features of this communication are summarized as follows: The failure of lard to promote growth in the same manner as other natural fats (namely, butter-fat, egg-yolk fat, cod liver oil) do, is not attributable to deteriorating changes arising from heat or chemical agents in the commercial manufacture of the product. Heating butter-fat with steam does not destroy its growth-promoting efficiency. Beef-fat also renders the inefficient diets used by us more suitable for producing growth in rats than does lard. When butter fat and beef fat are subjected to fractional crystallization from alcohol, the growth-promoting factor remains in the mother liquor "oil" fractions. The fractions containing the fats with high melting points are ineffective. Some quantitative aspects of the growth-promoting efficiency of the natural fats are discussed.

Journal of Infectious Diseases, Chicago

May, XVI, No. 3, pp. 349-504

32 *Influence of Oxidizing Substance (Sodium Iodoxybenzoate) on Immune Reactions. A. Arkin, Chicago.
33 *Simultaneous Infection in Child with Tubercle Bacilli of Human and of Bovine Type. A. de Besche, Christiania, Norway.
34 *Etiology and Experimental Production of Erythema Nodosum. E. C. Rosenow, Chicago.
35 *Starch Agar Useful Culture Medium. E. B. Vedder, U. S. Army.
36 *Complement-Fixation in Whooping Cough. W. Winholt, Chicago.
37 Various Sporotricha Differentiated by Fermentation of Carbohydrates. K. F. Meyer and J. A. Aird, Berkeley, Calif.
38 Individual and Group Variation in Guinea-Pigs in American Method of Testing Tetanus Antitoxin. L. B. Taber, Berkeley, Calif.
39 Studies on Gonococcus (Autolysis). C. C. Warden, Ann Arbor, Mich.
40 *Natural Hemolysins in Human Serum. J. A. Kolmer and A. J. Casselman, Philadelphia.
41 *Epidemic, Simulating Typhoid, Caused by Paragaertner Organism. G. H. Robinson, Providence, R. I.
42 *Complement-Fixation in Acute Rhinitis. K. Howell, Chicago.
43 Conglutination in Diagnosis of Dourine (Trypanosomiasis of Horse). H. Wehrbein, Ames, Ia.
44 *Ferment Activity of Blood Serum in Infectious Diseases. F. H. Falls, Chicago.
45 Germicidal Effect of Lactic Acid in Milk. P. G. Heinemann, Chicago.
46 Vacuum Method of Drawing Antihog Cholera Serum. T. P. Haslam, A. E. Hagan and R. V. Christian, Manhattan, Kan.
47 *Bacteriology of Rhinitis with Special Reference to Anaerobic Organism (Bacillus Rhinitis). R. Tunnicliff, Chicago.

32. **Influence of Oxidizing Substance on Immune Reactions.**—In order to study the influence of increased oxidation on other immune reactions, Arkin has used sodium iodoxybenzoate, an organic peroxid, which has a marked effect on oxidative processes in the body. He found that sodium iodoxybenzoate stimulates the production of hemolysin and agglutinin in rabbits when injected intravenously shortly after immunization. The results show that there is a close relationship between the production of antibodies and the oxidative processes. The substance probably acts by accelerating oxidations in the tissues which are the site of antibody formation. This acceleration is produced probably by some catalytic effect of the sodium iodoxybenzoate, for the small amount of oxygen injected into the circulation could not have this effect. That the action of this compound is exerted on the tissues is shown by the fact that the substance diminishes the intensity of the local allergic reaction

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in sensitized animals. It has a marked inhibitory action on the local tuberculin reaction in tuberculous animals. This action is due to a more active oxidation by the tissues of the toxic substances which cause the inflammatory reaction. Whether these toxic substances acted on are the ones present in the tuberculin or are produced at the site of the inflammatory reaction in the tuberculous animal has not been determined. However, sodium iodoxybenzoate has the power of oxidizing tuberculin in vitro, and this oxidation is accompanied by a decrease in the toxicity when injected into normal animals.

All these results suggest that there is a close relationship between oxidation and immune processes, for a substance which is an organic peroxid stimulates the production of antibodies. It probably sets up in the tissues, which are the site of antibody formation, a more active oxidation, not the result of the amount of oxygen which it contains but because of some catalytic effect. That the compound can influence tissue oxidation is shown by its inhibitory action on the local allergic reaction, a reaction due, in part at least, to interference with oxidation at the site of the reaction.

33. **Human and Bovine Tubercle Infection.**—The strain of tubercle bacilli isolated by de Besche from the mesenteric gland of a tuberculous child which on first examination had to be classified as "atypical," on closer study proved to be a "mixed virus," since both types of tubercle bacilli were isolated from the cultures. The individual from whom the cultures were isolated had been infected with tubercle bacilli both of the human and of the bovine type.

34. **Etiology and Production of Erythema Nodosum.**—A series of cases are recorded by Rosenow in which a bacteriologic study of the blood, of the probable infection atrium, and of excised nodes was made with almost uniformly positive results, lesions quite like those of erythema nodosum developing in animals on intravenous injection of the organisms isolated. A diphtheroid, gram-staining, polymorphic, nonmotile, nonspore-forming bacillus producing small, round colonies in dextrose agar, and small, gray, or yellowish, nonhemolysing colonies on blood agar, and having a wide range of fermentative power, was isolated from erythematous nodes removed in each of eight cases. The same organism was isolated at the same time in pure culture from the blood in two cases, and in conjunction with B. welchii in one case. The infection atrium would appear to have been the tonsils so far as the clinical history in two cases indicates; in three others the tonsils contained an organism which produced hemorrhages in the skin in animals; in another case the organism was found in a superficial ulcer in the throat, and in still another in an abscess of a tooth. In three cases the infection atrium was not apparent nor could it be determined. In four of the cases there was a definite but mild arthritis; in three, myositis or fibrositis; in two endocarditis; in four lymphadenitis; in two pericarditis; and in three, mild nephritis. All of the typical cases ended in recovery.

35. **Starch Agar.**—The medium on which Vedder has had the best success in cultivating the gonococcus consists of beef infusion agar to which 1 per cent. of starch has been added.

36. **Complement Fixation in Whooping Cough.**—Fifty-one cases were studied by Winholt, twenty-two cases with a history of pertussis, and twenty-nine cases without any symptoms or recent history of pertussis. Except for a few minor changes the test for complement fixation has been made as described by Bordet and Gengou. His results indicate that complement fixation in pertussis is obtainable about two weeks after the onset of the disease. The fixation is not as strong at this time as it is eight to ten weeks after the onset. At eight months after the beginning of the whoop, the reaction may still be present but not marked. When the influenza bacillus is used as antigen with serum of pertussis patients, no complement fixation occurs. The serum of patients with pertussis, or convalescing from pertussis, agglutinates the bacillus pertussis, but the concentration of the agglutinin varies greatly. The influenza bacillus is not agglutinated by the serum of pertussis patients in dilutions above 1-20. These results, as well as the results of the tests for complement fixation and agglutination with the serum of immunized rabbits, indicate no relationship between the bacillus of pertussis and the bacillus of influenza; the results with the serum of patients indicate that the bacillus pertussis has a specific relationship to whooping cough, but that the influenza bacillus has not.

40. **Natural Hemolysins in Human Serum.**—Sheep and dog according to Kolmer and Casselman are not the ideal hemolytic systems for performing complement fixation work with human serum, but hog, rat, chicken, horse, rabbit, or guinea-pig systems are preferable, depending from the practical side on the ease with which the authors can obtain these corpuscles and their specific amboceptors.

41. **Typhoid Epidemic Caused by Paragaertner Organism.**—An epidemic resembling in many ways a water-borne typhoid epidemic was investigated by Robinson. A careful bacteriologic examination of feces of patients was negative for typhoid, but an organism was found which seemed to have the cultural characteristics of the paragaertner group.

42. **Complement Fixation in Acute Rhinitis.**—With the use of the bacillus rhinitis as antigen, fixation of complement was obtained by Howell with the serums of persons with rhinitis and of persons injected with the bacillus after it is killed by heat. The fixation is most marked a few days after the onset of the infection and lasts only a short time. Serums of normal persons and of patients with various infectious diseases do not give complement fixation with the bacillus rhinitis. The serums of patients with acute rhinitis do not give fixation of complement, except occasionally when suspensions of various bacteria (pneumococci, staphylococci, streptococci, influenza bacillus, fusiform, pseudodiphtheric bacilli, etc.) ordinarily regarded as closely associated with rhinitis, if not the actual cause thereof, are used as antigens. These results indicate that the bacillus rhinitis bears a specific relationship to acute rhinitis as ordinarily observed in this region.

44. **Ferments in Blood in Infectious Diseases.**—Falls claims that in the infectious diseases the ferment content of the blood is increased above the normal in most cases. Acute infections in which the reaction between the infecting organisms and the body defenses takes place outside the blood stream, cause relatively little increase in the ferment content of the blood serum, as measured by this method.

47. **Bacteriology of Rhinitis.**—The bacillus rhinitis, in Tunnicliff's opinion, has some etiologic relation to acute and chronic rhinitis on account of its almost constant presence in the nose in such cases, its general absence from the normal nose, its ability to produce rhinitis experimentally with recovery in pure culture, and on account of the production, in cases of acute and chronic rhinitis and in persons injected with the bacillus, of specific antibodies (opsonins and complement-binding bodies).

Journal of Medical Research, Boston

May, XXXII, No. 2, pp. 201-308

48 *Importance of Inflammation in Immunity of Mice to Implanted Tumor. E. E. Tyzzer, Boston.

49 *Atypical Hemorrhagic Malignant Hepatoma. E. S. L'Esperance, Ithaca, N. Y.

50 Enlarged Thyroid Occurring in Elasmobranch Fish (Squalus Suckii). A. T. Cameron and S. Vincent, Winnipeg, Canada.

51 *Promitosis in Tumor Cells. O. T. Schultz, Omaha.

52 *Local Action of Lead. F. A. McJunkin, Boston.

53 Effect of Phosphorus Poisoning on Peroxidase Reaction of Rabbit's Liver. C. H. Bunting and P. K. Rand, Madison, Wis.

54 *Influence of Removal of Suprarenals and One-Sided Thyroidectomy on Gastric and Duodenal Mucosa; Experimental Production of Lesions, Erosions and Acute Ulcers. G. A. Friedman, New York.

48. **Immunity of Mice to Implanted Tumor.**—Tyzzer found that repeated inoculations of various tumors do not produce sufficient immunity to overcome an established tumor resulting from the first implant. It has been thus far impossible to immunize the Japanese waltzing mouse against tumor J. w. A, not only by repeated injections of large doses

of dried tumor in suspension but also by defibrinated blood or living tumor. The individuals of this variety of mice show such uniform susceptibility that the transference of the tumor from one individual to another appears not to involve any appreciable modification of the environment. The lack of immunity reaction is seen in the frequency of metastases and in the absence of instances of retrogression. This tumor as propagated in the waltzing mouse reproduces very closely, therefore, the conditions under which spontaneous tumors develop.

Implants of the Japanese waltzing mouse tumor J. w. A grow for a time as vigorously in nonsusceptible as in susceptible mice. In the former at the end of a fairly constant period of six or seven days inflammation together with degenerative changes become evident in the host tissue surrounding the tumor implant, while the latter is then secondarily affected through thus having its support of healthy growing tissue destroyed. In nonsusceptible mice which have been previously inoculated with tumor tissue, tumor implants are destroyed by a process in every respect similar to that just outlined, except that it follows soon after the introduction of the tumor tissue. Since this is accomplished more promptly, the reaction is found to be subsiding in immunized series at the time that it is just appearing in control series of nonsusceptible mice. Only living tumor is capable of exciting this reaction and as the tumor becomes necrotic the cellular infiltration quickly disappears. A similar inflammatory reaction occurs also around second implants of the Ehrlich Strain II in common mice, although these are known to be partially immunized by the first implant. This reaction is evidently based on the production in the immune animal of material which in combination with material elaborated by the tumor produces local injury to the tissues surrounding the implant and thus indirectly destroys the latter.

49. **Atypical Hemorrhagic Malignant Hepatoma.**—True hemangiosarcomas primary in the liver according to L'Esperance undoubtedly have been observed, but occur usually in early life; they are extremely rare and should not be confused with the atypical malignant tumors occurring in adult life. Endothelioma and perithelioma derived from the capillary structures of the liver are reported but without sufficient evidence, in the author's opinion, to support the view that they are true endotheliomas. True chorioma primary in the liver has not been proved to exist. The resemblance to chorioma observed in certain cases proves on analysis to be very superficial, since these tumors do not show the typical Langhans cells and syncytium as do true choriomas even when heterotopic. Primary atypical carcinomas of the liver parenchyma show wide variations in histologic structure, but usually exhibit in certain portions the definite arrangement of rows of cells simulating liver cords, with obvious transformation of hyperplastic liver cells into tumor cells.

The consideration of cirrhosis as an etiological factor in these cases does not appear to have sufficient justification. In the three cases which L'Esperance has had opportunity to study there was no cirrhosis, which rather favors the view that cirrhosis is not necessary in the development of this class of neoplasms and when present probably is of secondary importance. Reviewing these conclusions: The evidence appears very strongly to favor an epithelial origin for these atypical tumors, and it seems advisable, therefore, to classify them with the primary diffuse carcinoma derived from liver parenchyma. The term "atypical hemorrhagic malignant hepatoma" seems most suitable.

51. **Promitosis in Tumor Cells.**—The assumption of very primitive biologic mechanisms, not ordinarily possessed by normal metazoan cells, is believed by Schultz to be a characteristic feature of the cells of rapidly growing tumors. Among such mechanisms are very simple forms of division, as well as such which have always been termed atypical mitoses. Of these simpler division forms, one, which has been encountered in several varieties of malignant tumor, is characterized by the primary division of a nucleolus or, better, karyosome, the rest of the division simulating an amitosis. The participation of the karyosome in this process is believed to indicate the return on the part of the tumor cell to that condition in which the division sphere is permanently intranuclear, both in rest and in division. Other division figures, studied in a rapidly growing giant-cell sarcoma of the esophagus, would indicate that the kinetic center which has taken an intranuclear position can become temporarily extranuclear during the later stages of a form of division which simulates mitosis. Tumor cells, in their return to primitive biologic mechanisms, may be expected to show those simpler promitoses from which the mitosis of metazoan cells has been developed.

52. **Local Action of Lead.**—Within endothelial leukocytes and endothelial cells inorganic lead is changed to a compound that is soluble in albuminous fluids, in which form it passes into the blood producing a "stippling" of the corpuscles, and into liver cells producing in them a basophilic granulation. The basophilic hyaline change in both red corpuscles and liver cells, McJunkin claims, is due to the immediate presence of lead as is shown by subjecting the preparations to prolonged treatment with an alkaline sulphid. The reason for the failure to produce by the administration of lead for a few months (in the case of one monkey, eight months) lesions other than local lesions at the site of application and the basophilic granulation of the liver cells and red blood corpuscles is not apparent.

54. **Influence of Removal of Suprarenal.**—The result of experiments presented in this communication and in a previous one are summed up by Friedman as follows: 1. Suprarenal hypofunction causes lesions in the stomach in rabbits and in dogs. 2. An excess of thyroid gland, as produced by repeated intravenous injections was probably responsible for the gastric lesions of two dogs and of one rabbit (of four animals experimented on). 3. Thyroid hypofunction caused the appearance of duodenal lesions in five animals out of six. 4. An excess of adrenalin, produced by repeated injections of the drug, led to the appearance of lesions in the duodenum of dogs. 5. The simultaneous production of suprarenal and thyroid hypofunction did not lead to any lesions in the stomach, nor in the duodenum in rabbits. 6. When after removal of one suprarenal the other became hypertrophied, lesions were seen in both viscera of three rabbits and in the duodenum of one. From Friedman's experiments it seems probable that gastric lesions might be dependent on suprarenal insufficiency as well as on an excess of thyroid gland, duodenal lesions on the contrary on thyroid hypofunction as well as on excess of adrenalin. Gastric and duodenal lesions might be dependent on the alternating effect of hypofunction and hyperfunction of the suprarenals.

Journal of Nervous and Mental Disease, Lancaster, Pa.

May, XLII, No. 5, pp. 257-320

55 *Spinal Cord in Case of Isolated Atrophy of Small Muscles of Hands. M. E. Morse, Worcester, Mass.
56 *Cerebellar Syndrome. W. F. Schaller, San Francisco.
57 Angioma of Cerebellum. L. Newmark, San Francisco.

55. **Case of Isolated Atrophy of Small Muscles of Hands.**—A case of isolated atrophy of the small muscles of the hands, of uncertain etiology, occurring in a man 58 years old, of alcoholic habit is cited by Morse. The essentials of the lesion in the cord were: 1. Atrophic and degenerative changes in the nerve cells, widely distributed in the gray matter, but more prominent in the postero-lateral and post-posterolateral columns. 2. Cell losses in the posterolateral and post-posterolateral columns. 3. Vascular changes, which consist in a thickening and a mild perivascular lymphocytic infiltration, the latter being confined almost entirely to the sulcal arteries and their branches to the anterior horns. 4. A characteristic distribution, the lesion commencing in the middle of the seventh cervical and extending through the first dorsal segment.

56. **Cerebellar Syndrome.**—Of the more dependable symptoms in cerebellar disease Schaller classes ataxia of cerebellar type, asynergia, adiadochokinesis and cerebellar catalepsy; falling symptom, and variations from the normal in the functional labyrinth tests and the pointing reactions of

Bárány. Less dependable symptoms are those produced by intracranial pressure: Nausea, vomiting, vertigo, choked disks and nystagmus.

Medical Record, New York

June 5, LXXXVII, No. 23, pp. 925-966

58 *Chronic Diseases of Heart, Kidneys and Arteries. I. S. Wile, New York.
59 Economy in Study. G. Van Ness Dearborn, Cambridge, Mass.
60 Medicine of Old Testament. S. B. Blakely, Binghamton.
61 Natural History of Cancer. R. Bell, London.
62 Logical Classification of Medical Literature. A. L. Von Der Osten, New York.
63 Diabetic Type of Pyorrhea Alveolaris. D. B. Freundlich, New York.

58. **Preventive Measures in Chronic Diseases of Heart, Kidneys and Arteries.**—The various agencies which should be utilized in public health education are catalogued as follows by Wile: 1. The maintenance of a health bulletin to be distributed by mail, to be sent to schools, public libraries, to social and philanthropic agencies. 2. The development of moving picture scenarios so as to present health factors to the eyes of the public. 3. The encouragement of short sketches dealing with health problems for productions at vaudeville houses, and aid in writing them. 4. The use of posters on public billboards. 5. The organization of health exhibits in vacant stores and compact traveling exhibits for loan purposes to schools, shops, factories, churches and similar institutions. Such exhibits should be of two types, namely, a general "keep well" exhibit constructively showing how to live, and special exhibits depicting and illustrating such particular health problems, as the prevention of tuberculosis and the care of the baby, and plotted curves, photographs, cartoons, drawings, papier maché models and various other appealing exhibits will be required. 6. The maintenance of frequent press notices concerning facts necessary for public-health education. 7. The organization of a staff of capable lecturers within the department and the securing of cooperation from the department of lectures of the Board of Education with a view of increasing the number of lectures on health topics to the adult population attending the lectures at public schools. Further, the organization of a volunteer lecture corps to be recruited from public-spirited physicians, nurses, etc., interested in public health. 8. The distribution of brief, concise and to-the-point health talks to parents and industrial workers through the medium of the children of the public schools, the agents of the Metropolitan Life Insurance Company, and the secretaries of organizations, of churches, directors of Y. M. C. A. branches and such organizations as the Boy Scouts, the Campfire Girls, the state militia, and other organizations now existent. 9. The establishment of a health day to be celebrated by special exercises in schools, churches, etc., dealing with health problems. 10. Active participation in the programs of conferences on charities and corrections, to indicate the relation of various social problems to public health.

Pennsylvania Medical Journal, Athens

May, XVIII, No. 8, pp. 599-680

64 Indications for Operation for Strabismus. W. Reber, Philadelphia.
65 Arthroplasty with Report of Cases. S. L. McCurdy, Pittsburgh.
66 Extraperitoneal Operation in Strictures of Sigmoid Colon. W. M. Beach, Pittsburgh.
67 Blood Pressure in Pregnancy. J. C. Hirst, Philadelphia.
68 *Surgical Treatment of Gastric Ulcer with Especial Reference to Choice of Operation. C. H. Frazier, Philadelphia.
69 Simulation of Gastric and Duodenal Ulcer by Adhesions. Duodenal Dilatation, Visceroptosis, etc., Their Recognition and Treatment. G. P. Muller, Philadelphia.
70 *Abdominal Pain, Its Significance and Diagnostic Value. J. B. Deaver, Philadelphia.
71 *Case of Perforation of Esophagus followed by Septic Infection and Ending in Recovery. G. M. Coates and R. M. Goepp, Philadelphia.

68. **Surgical Treatment of Gastric Ulcer.**—That the incidence of gastric ulcer has been constantly increasing with the introduction of methods for earlier and more accurate diagnosis is claimed by Frazier. That gastric ulcer is often a precursor of cancer has been proved conclusively; hence a review of statistics as to the incidence of the latter disease should serve as a guide in our estimation of the frequency of ulcer, and should further emphasize the importance of the early diagnosis and treatment of gastric ulcer. With the various methods now at our disposal, the diagnosis of gastric ulcer is not a difficult one; there are, of course, exceptional cases. The history should always arouse suspicion; the roentgenogram confirms in nine out of ten cases. Frazier advocates surgical intervention in chronic ulcer of the stomach and duodenum, because the effect of surgical intervention is more enduring and more satisfactory than that obtained by medical methods. The nearer to middle life the patient is, the more urgently does Frazier impress the need of an operation, for fear of cancer. Gastrojejunostomy alone, has left a trail of failures. Gastrojejunostomy with exclusion and infolding of ulcer is a distinct improvement. Transverse resection offers greatest assurance of a complete enduring "cure."

70. **Abdominal Pain.**—When, after an abdominal operation, pain makes its appearance on the second or third day or later, Deaver says, three conditions are chiefly to be considered, simple distention, peritonitis and obstruction. The pains of distention and obstruction are as a rule colicky and wavelike, while that of peritonitis is more steady, diffuse and unremitting. In the first case the pain is quite definitely related to peristalsis, but in peritonitis no such relation is observed. Peritonitis causes tenderness and muscular rigidity which are absent in distention or mechanical obstruction. The temperature is an unsafe guide but is more likely to be elevated in peritonitis and the pulse is more markedly affected in rate and volume. As between simple distention and obstruction, the difference in the severity of the symptoms is the chief guide. When the intra-abdominal conditions present both obstructive and inflammatory characteristics, as in the ileus which accompanies general and some local peritoneal infections, the difficulties are markedly increased. The most important single feature in differentiation is the character of the pain, whether wavelike and intermittent or steady and associated with tenderness.

71. **Perforation of Esophagus Followed by Septic Infection.**—The interesting features of the case cited by Coates and Goepp are the number of different septic manifestations—urticaria, pleurisy, nephritis, polyarthritis and severe secondary anemia, the rapidity of their onset and equally rapid subsidence. The prostration during the height of the attacks, that is, during the period of severe arthritis, which was the prominent clinical feature of the case, was in proportion to the severity of the nephritis and the anemia, and for a time the prognosis was regarded as extremely doubtful. The recurring attacks of intense and generalized urticaria suggest an effort at elimination of the toxins and were regarded as not altogether an unfavorable symptom. From the therapeutic point of view the gratifying effects of hypodermoclysis on the urinary elimination and the rapid repair of the blood under hypodermic administration of iron are interesting.

Southern Medical Journal, Mobile

May, VIII, No. 5, pp. 345-442

72 Wealth of Health. H. W. Wiley, Washington, D. C.
73 Neuroses in Their Relation to Chronic Infections. J. A. Hodges, Richmond, Va.
74 Duodenal Alimentation. C. Stanley, Washington, D. C.
75 Symptomatology, Etiology, Pathology and Treatment of Pellagra. J. C. Johnson, Atlanta, Ga.
76 Present Status of Typhoid Prevention in Southern Municipalities. A. W. Freeman, Richmond, Va.
77 Municipal Control of Typhoid. W. B. Foster, Roanoke, Va.
78 *End Results of Round Ligament Fixation. (Bumm's Method.) W. Kohlman, New Orleans.
79 Appendicitis — Has Last Word Been Said About It? W. L. Peple, Richmond, Va.
80 *New Method in Disposing of Stump of Appendix After Its Removal. J. H. Carter, Memphis.
81 Pituitary Extract in Obstetrics. J. M. H. Rowland, Baltimore.
82 First Aid to Injured. L. E. Burch, Nashville, Tenn.
83 Instruction of Railway Employes in Practical Application of First Aid to Injured. J. M. Salmon, Ashland, Ky.
84 Sclerocorneal Trephining in Glaucoma. W. H. Wilmer, Washington, D. C.
85 Some Results of Nose and Throat Operations in Chronic Poisoning of Heart, Lungs, Kidneys, Joint, etc. H. B. Decherd, Dallas, Texas.

78. **End Results of Round Ligament Fixation.**—Up to Jan. 1, 1914, Kohlman operated on 216 cases by this method. He has communicated with and examined 70 of these cases, 60 of whom were found in good condition in regard to the position of the uterus and are free of important symptoms. In 4 cases the uterus was found in retroversion complicated with moderate local symptoms. Six cases have been operated on again, and the uterus was found in normal position, the ligaments only slightly elongated; operation was required on account of recurrent disease of the adnexa. Eight patients have been pregnant since the operation, two twice, and have passed through a practically normal delivery. The cervix was found in the beginning of labor somewhat drawn to the back but conditions rectified themselves during the progress of labor. In two cases only a low forceps was employed on account of delayed expulsion. Two cases came under his observation quite recently in the eighth month of pregnancy, and so far they have progressed without any pain or discomfort.

80. **New Method in Disposing of Stump of Appendix.**—In Carter's method the appendix is caught near the base with a forceps and clamped, and if not ruptured, or likely to, it is left until suture is inserted, otherwise it is cut off just above the clamp and removed. Then take a suture (catgut preferred, No. 2), in a straight or curved round needle, inserting it into the bowel about ¼ of an inch from the base of the appendix and extending about ¼ of an inch beyond, the needle running parallel with the base of the appendix when it is brought out through the bowel, the suture including about one third of the appendicular base. Two more stitches are taken in like manner around the appendix causing the sutures to form a triangle around its base. As the sutures extend within the bowel, the assistant with a pair of thumb forceps pushes down on the appendiceal stump, therefore inverting it into the bowel, when traction is made on the suture and tied. After the suture is tied it is Carter's custom to place two or three Lembert's sutures over same to reinforce and at the same time cover over the small bit of catgut that is without the serosa.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, London

April, II, No. 8, pp. 517-738

1 Principles of Operative Treatment of Traumatic Cerebral Lesions. W. Trotter.
2 Operation of Rib Mobilization in Treatment of Phthisis. H. M. Davies.
3 Symptomless Renal Hematuria Arising from Tumors, Aneurysms in Renal Pelvis, Calculus and Early Tuberculosis. D. Newman.
4 *Account of Six Specimens of Great Bowel Removed by Operation; Observations on Motor Mechanism of Colon. A. Keith.
5 Operative Technic of Ileocolostomy and of Colectomy. W. A. Lane.
6 *Bacterial Activity in Alimentary Tract. N. Mutch.
7 *Roentgenologic Studies of Large Intestine. A. E. Barclay.
8 Four Cases of Ileosigmoidostomy for Relief of Constipation and Intestinal Stasis. G. Barling.
9 *Colectomy for Hirschsprung's Disease. L. E. Barrington-Ward.
10 Analysis of Consecutive Series of Cases of Various Forms of Arthritis, Treated by Ileocolostomy or Colectomy. C. H. Fagge and E. C. Hughes.
11 Operations for Intestinal Stasis. R. D. Mothersole.
12 *Homobone-Graft in Case of Sarcoma of Radius. J. H. Robertson.
13 Splenic Jaundice. H. Upcott.
14 Result of Surgical Treatment of Long-Standing Case of Congenital Equino-varus. G. Robertson.
15 Contemporary American Surgery. G. W. Crile.
16 Bacteriologic Investigation of Wounds, Skin, Etc. J. O. Hamilton.
17 Frost-Bite. C. B. Lawson
18 Case of Division of Vagus, Hypoglossal and Sympathetic Nerves by Bullet, with Formation of Arteriovenous Aneurysm of Carotid. K. H. MacMillan.
19 Case of Arrested Development of Small Bowel in Man Twenty-Eight Years Old. A. MacCormick.
20 Turnip in Rectum. G. R. Peterson.
21 Case of Multiple Foreign Bodies in Colon; Operation and Recovery. H. M. W. Gray and H. R. Souper.
22 Esophageal Obstruction Due to Enlarged Thyroid. J. Halpenny.
23 An Unusual Urinary Calculus (Hairpin Imbedded in Phosphate) in Child. L. E. Barrington-Ward.

4. **Six Specimens of Great Bowel Removed by Operation.**—Attention is directed by Keith to the knowledge which can be gleaned from a systematic examination of such specimens as are removed by operation from patients suffering from the incurable forms of colitis and of intestinal stasis. He states that the pathologic condition cannot be explained on the simple basis of mechanical obstruction; our only hope of penetrating the secrets of the disease is a fuller knowledge of the anatomy and physiology of the great bowel, and its manner of action in health and disease. His examination has convinced Keith that the operation of colectomy is justifiable in the cases in which the pathologic conditions seem to be beyond repair.

6. **Bacterial Activity in Alimentary Tract.**—The main facts which are substantiated by Mutch are briefly summarized as follows: Dilatation of the duodenum is usually associated with gastric stasis. Dilatation of the duodenum varies directly as the degree of ileal stasis, and—apart from this—shows no relationship to the ileal kink. Epigastric tenderness in constipated subjects is usually experienced over the third part of the duodenum; not over the pylorus. Typical "hunger" pain may arise when food in the lower ileum produces duodenojejunal obstruction. A pure culture of a long-chained gram-positive hemolysin-producing streptococcus was obtained from the duodenum of a man with severe anemia and pigmentation. The richness of the living bacterial flora of the colon is immeasurably greater than that of the last coil of the ileum. The degree of ileal infection with coliform organisms is proportional to the degree of ileal stasis. A marked ileal kink acts as a protective barrier against invasion of the ileum by coliform organisms.

The infection of the ileum with coliform organisms and the dilatation of the duodenum vary in a parallel manner. The infection of the ileum with coliform organisms is uninfluenced by the acidity of the gastric secretions. Urine of constipated patients often contains urobilin. Urine from constipated patients often contains hydroxyphenylacetic acid. The excretion of the more complex tyrosin decomposition products varies directly as the degree of ileal infection with coliform organisms. The excretion of tryptophan decomposition products varies directly as the degree of ileal infection with coliform organisms. The excretion of indoxyl, indolacetic acid and hydroxyphenylacetic acid is uninfluenced by an infection of the ileum with streptococci or with the *B. acidophilus* of Moro. The excretion of the last-mentioned substances varies in proportion to the degree of ileal stasis.

The excretion of tyrosin derivatives is uninfluenced by hyperchlorhydria, but increased by hypochlorhydria. The excretion of tryptophan derivatives shows the same relationship to gastric secretion as does that of the tyrosin derivatives. The excretion of indoxyl, indolacetic acid, hydroxyphenylacetic acid and urobilin is almost entirely abolished by ileocolostomy. An infection of the ileum with *B. aminophilus* occurs in constipated patients with a subnormal blood pressure, but not in other constipated patients. Chronic infection of the ileum with *Staphylococcus citreus* has been shown to be present with chronic septicemia due to the same organism, and with the chronic joint, lymphatic and splenic changes classified as Still's disease. The constitutional changes and those in the joints, lymphatic glands and spleen were abolished by colectomy. Fifty-five ileums of patients without Still's disease were free from *Staphylococcus citreus*. The hands of constipated patients recover from exposure to cold at a very much slower rate than do the hands of healthy subjects. A patient with Raynaud's disease was found to be the subject of chronic intestinal stasis. In his ileum were large numbers of an unusual gram-positive bacillus and a short streptococcus. Colectomy restored his hands to a normal condition, in which they showed normal reaction after exposure to cold. His ileal flora formed pressor bases from peptone.

7. **Roentgenologic Studies of Large Intestine.**—According to Barclay, the ileocecal region is in very close association with the duodenopyloric region. There is evidence of two separate reflexes between the ileocecal valve and the pylorus,

namely, one from the stomach to the ileocecal valve, and another from the ileocecal valve to the stomach, the latter (the ileopyloric reflex) being responsible for appendix dyspepsia. Ileal stasis is, up to a point, physiologic. Pathologic ileal stasis is usually associated with adhesions in this region, most frequently appendicular in origin. In all these examinations it is essential to prepare and examine patients on a routine plan. A scheme that includes "double" feeding is useful. The appendix can be seen in a certain proportion of cases, and, by palpation, it can be detected whether it is fixed or lying free. The normal movement of feces through the large intestine is by "mass" movement, in which a large column is moved through a long section of the colon in a few seconds; these movements take place probably some three or four times a day. The "mass" movements do not occur in the cecum.

Constipation occurs as the result of stagnation: (*a*) In the sigmoid and rectum, namely, inefficient defecation, or dyschesia; and (*b*) in the cecum, constipation proper. Constipation proper is probably the result of a defect in the mechanism of the "mass" movement. It is suggested that for the efficiency of this movement it is necessary that a sphincteric contraction should be present. The competency or otherwise of this sphincter, or *point d'appui*, determines whether the "mass" movement, when it occurs, propels all the feces forward, or sends some of them back into the cecum. The large, sloppy cecum is the result of this inefficiency, and not the cause of constipation. The opaque meal seldom gives information as to early neoplasms of the large intestine—it is only after the bowel becomes distended that information is obtained in this way. All suspected cases of neoplasm of the large bowel should be investigated by means of the opaque enema.

9. **Colectomy for Hirschsprung's Disease.**—Of seven cases—all examples of the disease in its most extreme form seen by Barrington-Ward, two patients died as the result of the operation, one from shock, and one from the effects of a severe accidental hemorrhage at the operation. Of the five remaining patients, four are perfectly healthy normal children without any distention or constipation. One has still some slight distention; but this is attributed to tuberculosis of the mesenteric glands, which has been a complication throughout. The most recent of these operations was ten months ago, and it is therefore reasonable to hope that their cure is permanent.

12. **Homobone-Graft in Case of Sarcoma of Radius.**—In Robertson's case there was a swelling the size of a tangerine orange at the lower end of the left radius. This swelling was rounded, hard, nonfluctulant, most prominent in front, and did not interfere with the movements of the wrist joint. The diagnosis of periosteal sarcoma was made, and the patient having refused amputation, it was determined to remove the tumor by a resection of the lower ends of the radius and ulna and to restore the arm by means of bone grafts. All tumor tissue was very thoroughly removed, and the wound prepared for the reception of the graft by careful hemostasis. The graft, composed of appropriate portions of bone with the periosteum and carpal ligaments, from a patient whose arm was being amputated at the shoulder, was then prepared and placed in position. The carpal ligaments were stitched with great care, especially posteriorly, and the radius was wired to secure fixation.

For some days after operation the patient had considerable pain and a slight evening rise of temperature, but the dressing was left intact until February 25, when on its removal the wound was found healed. From that time massage and passive movements were carried out daily, the arm being kept in anterior and posterior flat splints in the intervals. A roentgenogram taken at this time showed the radial graft in good position, radial deviation of the ulnar graft, and some slight rarefaction of the lower end of the native radius. When the patient was dismissed there was a slight degree of mobility between the ends of the grafted and the native bones, and movement at the wrist joint was not free. Eleven months later there was marked evidence of local recurrence of the tumor, but no metastases in the lymph glands or in the lungs. Amputation was performed above the elbow. The wrist joint had not been reformed, a firm fibrous tissue intervening between the grafts and the native carpal bones. The tumor separated the ends of the graft and native bones, and invaded the graft radius equally with the native one. The native and graft ulna were also to some extent involved. A small isolated tumor nodule was seen in the substance of the semilunar bone. Apart from tumor invasion, the grafts had all the appearance of living healthy bone.

Bulletin de l'Académie de Médecine, Paris

May 4, LXXIII, No. 18, pp. 527-557

24 Telegony a Myth. (Les viols et la télégonie.) G. Barrier.
25 Serotherapy of Wounds. (Traitement des plaies infectées par le sérum spécifique de Vallée-Leclainche.) M. de Fleury.
26 Improved Technic for Emergency Filtration and Sterilization of Water. E. Fourneau and Lemeland.
27 *Loose Scrap of Shell Removed from the Right Ventricle; Recovery. Beaussenat.

27. **Scrap of Shell Extracted from Interior of Heart.**—This case illustrates anew the remarkable tolerance of the heart, the scrap of shell weighing 1.5 gm. and measuring 1 cm. long by 3 mm. thick. It had been in the heart for four months and a half, during which there had been dyspnea on exertion and precordial distress, especially at night, occasionally leading to syncope. Roentgenoscopy showed the scrap of metal following the movements of the heart. By moving gently and speaking slowly the young man kept his symptoms mild. There were no murmurs or other signs of anything wrong in the heart, except a thrill at the apex. The foreign body was supposed to be in the pericardium, but when this was opened it could be felt loose in the right ventricle. The myocardium was then brought out of the pericardium and two loops of silk, about 5 or 6 mm. apart, were passed lengthwise through the ventricle wall. With these the heart was held firm and the lips of the incision held apart. The spurting black blood was checked with the left index finger, while the heart was held between the thumb behind and the three other fingers in front. During the diastole the scrap of metal was seized with forceps after one ineffectual attempt. The heart was then sutured with silk. For three days the dyspnea was intense, the pulse weak and irregular, the facies drawn and pale, but the patient recovered and may now, two months later, be considered actually cured. Recovery at first was delayed by three brief attacks of cough and blood-stained sputum, evidently from embolism in the lungs. Now auscultation gives normal findings and electrocardiography shows merely a predominance of the left ventricle. (See also Paris letter, June 5, p. 1927.)

Presse Médicale, Paris

May 10, XXIII, No. 20, pp. 153-160

28 *Clinical Pictures and Treatment After Wounds of Peripheral Nerves. J. and Mme. Dejerine and J. Mouzon.

28. **Wounds of Peripheral Nerves.**—A number of illustrations are given to show the clinical pictures presented when the trunk nerve in the arm or leg has been severed or is suffering from compression or is recuperating after an operation. A number of typical cases are described, with the operative measures applied and the results to date. Any sign of spontaneous recuperation is regarded as a formal contraindication to operative measures unless the improvement is persistently restricted to sensory fibers. The necessity for respecting the nerve tissue proper in any operation is emphasized anew. Even pushing a sound nerve aside is liable to entail a tendency to paresis, pain and reaction of degeneration for a couple of months, and a regenerating nerve is even more sensitive.

Berliner klinische Wochenschrift

May 10, LII, No. 19, pp. 481-508

29 War and Venereal Diseases. (Krieg und Geschlechtskrankheiten.) K. Touton. Concluded in No. 20.
30 *When Should the Spinal Fluid be Examined in Syphilis? A. Neisser.
31 Aplasia of Left Kidney and Ureter; Frequency of this Deformity. K. Secher.

32 *Pathogenesis and Treatment of Constitutional Purpura. (Die essentielle Thrombopenie.) E. Frank. Commenced in No. 18.
33 Universal Orthopedic Apparatus. (Kombinationsapparat.) M. Wunsch.

30. **Examination of Spinal Fluid in Syphilis.**—Neisser deplores the fact that many physicians still have failed to master the technic of examination for spirochetes, so that far too often syphilis fails to be recognized in the early phases, when it can be so much more easily stamped out. It would be an advantage also if all physicians made a point of examining the serum in all cases of illness of any kind, with and without a history of venereal disease.

Examination of the fluid drawn by lumbar puncture is equally indispensable at certain times. When everything indicates that the treatment has done its work and the course can be suspended, then examination of the spinal fluid will reveal whether this is really the case. Negative findings in the fluid do not absolutely guarantee that the central nervous system is entirely free from syphilis; but at least we have done our duty in such cases.

It sometimes happens that the Wassermann persists positive, notwithstanding repeated vigorous courses of treatment. The question is, should we keep on repeating the courses indefinitely? Here, again, the spinal fluid may serve as a guide. If the findings in this are all negative, there is every probability that the central nervous system is free. If the nests of spirochetes—which are probably responsible for the persisting Wassermann reaction—are located in other organs, the outlook is not so serious, for they can almost always be acted on here by intensive treatment. Neisser's idea is, thus, that it is indispensable to examine the spinal fluid in every case, but not often, merely to decide certain special questions. Each patient has to be warned that the lumbar puncture may possibly be followed by headache for several days, compelling him to stay in bed. This headache rarely occurs if the patient lies down at once after the puncture and keeps in this absolutely horizontal plane for twenty-four hours. Neisser injects now, directly after the puncture, 10 or 20 c.c. of the patient's own serum, salvarsanized or not, and this seems to be a more certain protection against headache.

32. **Constitutional Purpura.**—The first part of Frank's article was reviewed in these columns June 12, p. 2025. He here discusses the pathogenesis of the trouble, tracing it to a constitutional deficiency in blood platelets. Hence he prefers to call it by the more descriptive term "essential thrombopeny" instead of constitutional purpura or pseudohemophilia. In treatment, arsenic and sea or mountain climate are the main reliance with the use of an extract of blood platelets, locally or possibly intravenous, to arrest the hemorrhages. The extract of blood platelets contains the lacking thrombozyme and hastens coagulation. Intravenous injections of 5 or 10 c.c. of 10 per cent. salt solution are regarded by many as one of the best means to arrest internal hemorrhage. Frank adds that an ideal treatment is by intravenous injections of large amounts of normal blood plasma, rich in platelets. The blood of the donor (400 or 500 c.c.) is caught in a vessel covered with just enough leech extract to prevent coagulation (10 mg. Hirudin to 75 c.c. blood). After it has set on ice or been slowly centrifuged, the plasma is drawn and slowly infused into a vein. If the donor is not a blood relation, the plasma should be tested beforehand for a destructive action on the patient's blood corpuscles.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 8, XLV, No. 19, pp. 577-608

34 *Industrial Accidents from the Medical Standpoint. (Zum Unterricht in der Unfallmedizin.) F. de Quervain.

34. **Industrial Accidents from the Medical Standpoint.**—De Quervain regards it as great progress that in 1912 the authorities added a course on "accident medicine" to the medical curriculum in Switzerland. Hasty examinations and certificates made out in ignorance of the fundamental principles have often led to years of litigation that might easily have been avoided. The next step is to organize most wisely the course on industrial accident medicine to supplement the workman's compensation legislation. For this the present surgical clinics should be utilized for instruction in minor surgery and in the after-care of injuries of the fingers, for example. He emphasizes that there is no such thing as surgery especially for industrial accidents; the principles are the same for all, but we may speak of special arm and leg or "extremity surgery," and for this, as for all industrial accident medicine, practical rather than theoretical training is the main point.

Deutsche medizinische Wochenschrift, Berlin

May 6, XLI, No. 19, pp. 545-576

35 Bread and Its Properties. II. M. Rubner. Concluded in No. 20.
36 *Improved Test for Occult Blood in the Stools. (Eine Verbesserung der Phenolphthaiinreaktion zum Nachweis okkulter Blutungen in den Faeces.) I. Boas.
37 War Wounds of Spinal Cord. (2 bemerkenswerte Fälle von Rückenmarksverletzung durch Gewehrschüsse.) E. Fraenkel.
38 Canned Culture Mediums. (Prüfung der Bakteriennährböden in Konservenbuchsen nach Uhlenhuth und Messerschmidt.) A. Hirschbruch and L. Levy.
39 Adjustable Extension in Plaster Cast. (Ueber distrahierende Gipsverbände.) Meyer.
40 Fine Results of Bloodless Treatment of Congenital Dislocation of the Hip-Joint. (Die Vorzüge der unblutigen Einrenkung bei der Behandlung der angeborenen Hüftverrenkung.) W. Böcker.
41 *The Laws of Inherited Syphilis. (Infektions- und Immunitätsgesetze bei materner und fötaler Lues.) J. Trinchese.
42 Inefficiency of the Antivermin Measures in Vogue. (Unzulänglichkeit der bisherigen Entlausungsverfahren.) A. Brauer.

36. **Improved Technic for Detection of Occult Blood in the Stools.**—Boas calls attention to the advantages of the simplified technic he is now using and has found much more sensitive than the benzidin and guaiac tests, while it is fully as reliable. An acetic acid-alcohol extract of the feces is made (5 drops glacial acetic acid to 15 or 20 gm. alcohol). Then 15 drops of the phenolphthalin reagent are dropped in a test tube, 5 or 6 drops of 3 per cent. hydrogen peroxid are added and 2 c.c. of absolute alcohol, and the whole is shaken up. Half of the above mentioned acetic acid-alcohol extract is poured into a filter-funnel and this is placed in the test tube so that the filtrate comes slowly into contact with the fluid in the test tube. If there is blood present, a pink or deep red ring forms at the junction of the two fluids. He purifies the commercial phenolphthalin by reduction with pulverized zinc in an alkaline solution. For this he shakes up 1 gm. of phenolphthalin in a solution of 25 gm. potassium hydroxid in 100 gm. distilled water. When thoroughly dissolved he heats the whole in an Erlenmeyer flask, adding metallic zinc until entirely decolored, which requires one or two hours. The fluid then is cooled, brought to the original volume and filtered. The fluid then is limpid, keeps several weeks unchanged and the colorless fluid shows no change of tint on addition of acetic acid, hydrogen peroxid or alcohol. Several hundred applications of this "phenolphthalin ring test" during the last few months have confirmed its superiority for examination of stools, but this technic cannot be used for stomach content. For this he prefers the guaiac test on an acetic-acid alcohol extract of the stomach content. In conclusion he reiterates the extreme importance of the discovery of occult blood in the stomach content as a sign of gastric or duodenal ulcer.

41. **The Laws Regulating Maternal and Fetal Syphilis.**—Trinchese's conclusions from his experience at a serologic laboratory at Berlin and analysis of the literature are to the effect that Colles' and Profeta's laws were based on mistaken premises and do not correspond to the facts, as there is no paternal transmission of syphilis, the fetus does not generate immunizing substances and the placenta does not permit passage of immunizing substances from the maternal to the fetal tissues. The earlier the fetus is infected, the more rapidly the syphilis runs the course of sepsis, killing the fetus within six weeks. Until about the eighth month the fetus does not generate immunizing substances, that is, its blood responds negatively to the Wassermann test even although its tissues may be swarming with spirochetes and the mother present a positive Wassermann. In the eighth and ninth months the fetus may begin to present a weak and inconstant Wassermann reaction. If the child becomes infected first during the last few weeks before birth, there may be no

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clinical manifestations of the syphilis and no Wassermann reaction as the time has been too short for either to develop. These are the children that used to be supposed "immune"; they supply the material for the cases of tardy inherited syphilis. A syphilitic mother can have a child clinically free from syphilis and with a negative Wassermann; or the Wassermann may be positive; it may have symptoms of syphilis and a positive Wassermann; or it may have symptoms and a negative Wassermann. This sequence rises from the mildest to the severest type. The last mentioned—clinical manifestations of syphilis without any indications of a Wassermann reaction—generally proves fatal.

Medizinische Klinik, Berlin

May 9, XI, No. 19, pp. 527-552

43 *War Wounds of Peripheral Nerves. M. Nonne. Commenced in No. 17.
44 *Prophylaxis of Typhus. G. Singer and others.
45 Indirect Injury of Internal Ear in War. (Schädigungen des inneren Ohres durch Geschosswirkung.) E. Schlesinger.
46 *Epidemic Parotitis. (Epidemische Speicheldrüsen- und Nebenhodenentzündung.) H. Eichhorst.
47 Emergency Sterilization of Water. (Versuche über Trinkwassersterilisation.) H. Strausz.
48 Serodiagnosis of Syphilis. (Ueber Ergebnisse der Hermann-Perutz-Reaktion bei Syphilis.) G. Stümpke.
49 *Prolonged Retention of Placenta After Abortion. (Zur Kasuistik der Fehlgeburt.) H. Walther.
50 Causes of Death of Prominent Physicians of History. (Todesursachen bei namhaften Medizinern.) H. Vierordt. Commenced in No. 17.

43. **Wounds of Peripheral Nerves.**—Nonne remarks that soldiers afford more instructive data than the shifting inmates of public hospitals, so that the next year or so will probably add much to our knowledge in regard to injuries of peripheral nerves and effects of treatment. His experience with wounded soldiers has confirmed Charcot's saying that one must suspect hysteria everywhere. He reports a number of cases in which a wound was followed by paralysis but the behavior of the tendon reflexes in the paralyzed limb was normal, and the paralysis was soon cured by suggestion in hypnosis. In nearly every one of his cases of "grande hystérie" the true nature of the disturbance had not been recognized, and the diagnosis had been cerebral, spinal or neuritic paralysis, and time and effort had been wasted on futile measures. When hysteric contracture affects a limb that has been wounded, general anesthesia may be the only means to cut out the hysteric element from the clinical picture. In short, Nonne reiterates, hysteria very often fails to be recognized. This is particularly liable among the wounded as war hysteria takes predominantly the monosymptomatic and "local" (traumatic) form. He has operated in forty-five cases of wounds of peripheral nerves, and is convinced that a nerve that has been smoothly severed should be operated on early, as soon as the complicating lesions have healed. If there is doubt whether the nerve has been divided, wait six or eight weeks to see if function returns spontaneously. If not, operate. The after-care, exercise, etc., are of extreme importance.

44. **Typhus.**—Singer appealed to our exchange to solicit communications on this subject from hygienists, and five are published here from various leading hygienists. Uhlenhuth emphasizes the necessity for keeping the "clean" quarters separate from the infected quarters. It is impossible to be too careful here; no means should be omitted to keep vermin out of the clean part. Sticky substances, bird lime, etc., may render good services here. Persons who have had typhus should be selected for the care of typhus patients whenever possible.

46. **Epidemic Parotitis.**—This term, strictly speaking, does not apply to the two cases described, as the submaxillary and not the parotid glands were the ones involved. In each case the epididymis was also the seat of an inflammatory process instead of the usual orchitis. In both cases the pulse was very slow, only 56, and during fever only 84 in one case; in the other, 70 or 80 and 92.

49. **Retention of Placenta after Miscarriage.**—Walther discusses here merely the miscarriages occurring in the fifth and sixth months, with prolonged retention of the placenta. The danger of ascending infection and of hemorrhage in such cases does not seem to be appreciated by all physicians in its true importance, and he relates a series of five cases in which physicians had been content to wait for Nature to expel the placenta, and under this direful expectant treatment serious complications had developed. In one case sudden and serious hemorrhage recurred several times after an incomplete abortion; in others there were constant losses of blood. In the other cases there was putrid and septic infection. In two of the cases the physicians had made no attempt to empty the uterus; in the others repeated but futile attempts had been made.

Walther insists that during the fifth and sixth months the placenta should be expelled within two hours after the fetus, and the physician should see that this is done, with just as much care as at term. Physicians should study the relative proportions of fetus and placenta at different ages so as to recognize when part has been left behind. Figures are quoted showing that at the fifth month the placenta averages 10 by 12 cm., and is 1 or 1.5 cm. thick, and at the sixth month, 12 by 13 cm. and 1.75 to 2 cm. thick. These miscarriage cases are often particularly difficult to manage as the physician may not be called in until late, when all that came away has been disposed of. In order to stimulate the uterus to throw off the placenta, Walther advocates quinin, which, he says, has been crowded somewhat into the background by the hypophysis preparations. In miscarriage it works much more promptly than the latter, as he illustrates by two recent examples. In one the placenta had not separated by the twelfth hour but was promptly expelled spontaneously after two doses of 0.5 gm. quinin sulphate in one hour. He warns that ergot directly promotes retention.

If the Credé does not loosen the placenta, he repeats it under general anesthesia. If there is much hemorrhage the uterus can be manipulated by pressure from without and from two fingers in the posterior culdesac of the vagina. If the physician is called late in the case, Walther advises calling in an experienced consultant, as the removal of an undetached placenta with the cervical canal closed up requires great skill. The curet is dangerous, especially a small one, as it lifts part of the placenta and opens the vessels in that location beneath and from them the woman may bleed to death before the whole of the placenta has separated. Correct management of the retained placenta after a miscarriage during the second third of pregnancy is to dilate the cervix with a tent until the finger can be introduced; then loosen the placenta with the finger. If this proves impossible, introduce an abortion forceps to the lower pole of the placenta, or, as a last resort, a large, blunt, wide curet; abrupt dilatation of the cervix is dangerous.

Münchener medizinische Wochenschrift, Munich

May 4, LXII, No. 18, pp. 609-640

51 Advantages of Systematic Regulated Gymnasium Work for Convalescent Soldiers. (Errichtung von Uebungsabteilungen für Lazarettrekonvaleszenten.) R. D. v. Tabora.
52 Sugar Enrichment to Facilitate Detection of Meningococci in Spinal Fluid. M. Obé.
53 Intravenous Vaccine Therapy of Typhoid. (Ueber Impfstoffbehandlung des Typhus abdominalis auf intravenösem Wege.) H. Reibmayr.
54 Salvarsannatrium. J. H. Fabry and A. Fischer.
55 *Serodiagnosis by Optic Method. (Weitere experimentelle Untersuchungen über die Spezifität der Abwehrfermente.) H. Jaffé and E. Pribram.
56 Superior Advantages of Salicylic Acid in Treatment of Acute Rheumatism. (Kann und soll der akute Gelenkrheumatismus mit reiner Salizylsäure behandelt werden?) J. Zadek.
57 *Charcoal as Dressing for Wounds. (Wundbehandlung mit Tierkohle.) E. v. K. Lenz.
58 Prophylaxis of Typhus. B. Nocht and J. Halberkann. (Vorbeugung von Fleckfieberübertragungen auf Aerzte und Pfleger.) T. v. Wasielewski, G. Wulker and W. Kulka.
59 Hygiene at the Front. (Gesundheitskommissionen im Felde.) E. Sergeois.
60 The Diet at the Front. (Winke für die Ernährung im Felde.) W. Peyer.
61 Emergency Artificial Legs. (Interimsprothesen für Amputierte.) Schaedel.
62 *Wounds of the Skull. (Schädelschüsse.) H. Thiemann. Commenced in No. 17.

55. **Specificity of Protective Ferments.**—Jaffé and Pribram declare that although the nature of the protective ferments is still a mystery, yet the fact of their specificity seems now to be well established. They report further experimental work which confirmed that the digesting properties of the serum can be arrested by heating, but it can be activated again by adding fresh serum. Even when heated to 58 C. for forty-five minutes, rabbit protective ferments thus inactivated can have their digesting property restored by addition of fresh guinea-pig serum.

57. **Charcoal Treatment of Wounds.**—Lenz reports thirty cases in which charcoal was used, and with excellent effect, in treatment of suppurating wounds. They were first cleansed with hydrogen dioxid, then gently dabbed dry with gauze after which the surface was buried under a layer of charcoal blown on with an insufflator until the whole surface was black. The dressings were changed daily, hydrogen dioxid being used to rinse off the charcoal.

62. **Wounds of the Skull.**—Among the many points emphasized by Thiemann from his extensive experience is the advisability of refraining from anything more than cleansing the wound and dressing it, until the man reaches a well equipped hospital in the home zone. The way in which the gaps in the skull grow up is astonishing, as also the absence of deficit phenomena in many cases of extensive destruction of brain tissue. In one case none were evident although one-third of the right frontal brain had been shot away; in another most of the right half of the cerebellum had been destroyed, and in another large portions of the parietal lobe and central convolutions. The extent of the primary injury of the brain does not in itself contraindicate operative treatment.

Therapie der Gegenwart, Berlin

May, LVI, No. 5, pp. 161-200

63 Typhoid Among the Soldiers. (Zur Diagnostik und Therapie des Typhus im Felde.) F. Klemperer, W. Oettinger and F. Rosenthal.
64 *Autoserotherapy of Typhoid is Ineffectual. (Zur Behandlung des Typhus mit Eigenserum.) R. Meyer.
65 *Treatment of Exophthalmic Goiter. (Gesichtspunkte zur Behandlung des Morbus Basedowii.) W. Weiland.
66 *Aluminum Acetate in Alcohol Effectual in Smallpox. (Neue Methode der Blatternbehandlung.) F. Traeger.

64. **Inefficacy of Autoserotherapy of Typhoid.**—Meyer has given this method of treating typhoid a thorough trial, and reproduces here the curves of nine cases out of a much larger experience. He followed the technic which Widal and Königsfeld have used with much success, according to their published reports, but Meyer was unable to detect any benefit from it.

65. **Exophthalmic Goiter.**—Weiland remarks that men trained to think surgically are apt to regard exophthalmic goiter altogether too much from the surgical standpoint, and internists view it from the internal medicine standpoint, while men who have had much experience are liable to follow the method of treatment with which they have been most successful in the past, without due regard to whether the present case fits into the frame of the former cases. In the present article the experiences in Lüthje's service at Kiel for the last ten years are analyzed. They confirm the necessity, with internal measures, of supplementing general treatment both physical and psychical with a diet to influence the metabolic disturbances and specific treatment of the thyroid itself. Measures in all these directions are called for usually in every case, from the mildest thyrotoxicosis to the severest type of exophthalmic goiter.

Disturbance from perverted thyroid functioning develops very insidiously as a rule. At first there are symptoms of a general nervous disturbance; the temperature is normal unless there is an underlying tuberculosis. The proportion of patients restored to full earning capacity is larger under operative than under medical measures, but the latter perseveringly applied restore full earning capacity in a larger percentage than is generally realized. Still greater benefit can be realized if roentgenotherapy is used to supplement other measures, with or without an operation. Weiland states that he has never witnessed a case in which every one of the symptoms had entirely retrogressed under surgical or medical measures or both, but we are justified in calling the case cured when the patient feels strong and well, the heart behaves normally, and there is no further restlessness, tremor or abnormal sweating, and full earning capacity is restored.

The first thing in treatment is to ensure physical and mental respose; a few days in bed benefit in mild cases as much as a few weeks in the severer forms. This repose should not be disturbed by dietetic or other restrictions, but should be utilized to tranquilize the patient's mind and obtain his cooperation in the efforts for recovery. The treatment at this time should be the same as for nervous prostration or convalescence from any sickness except that sedatives may be required to overcome severe motor and psychic unrest. In the milder cases no drugs are needed unless a prescription seems to be called for, in which case valerian might be ordered. Arsenic is also useful, but he never gives iron. The diarrhea or sweats disappear spontaneously as the general condition improves. For several years it has been the practice at Kiel to give sodium phosphate in every case of exophthalmic goiter, for reasons which Weiland enumerates, and it is regarded as an essential part of the treatment. It is given in daily doses of 3 or 4 gm. in a 10 per cent. solution. Digitalis is given only under the same indications and dosage as with organic disease of the heart.

The diet should be that of forced feeding, training the patient to masticate and striving to tempt his appetite, making special use of carbohydrates and fat, possibly supplemented with some pancreas preparation. It is not necessary to push the forced feeding to bring the weight up to normal. Local applications of cold and electricity may relieve the tormenting symptoms from vascular goiters. He has not had favorable results from organotherapy of exophthalmic goiter, but has been much impressed with the benefit from Roentgen exposures. They can be applied in all forms of exophthalmic goiter. He used hard tubes, of 3½ ma, with 16 x as the maximal dose, fractioned at two sittings with a few days' interval, repeating this for three or four months, with two and four weeks' intervals.

If the weight and strength keep running down and the heart functioning growing worse, an operation should be recommended without delay but otherwise not until after a thorough course of internal measures. For operative treatment, the objective symptoms form the criterion. Weiland in conclusion emphasizes that after operative treatment the patient requires medical oversight as much as after an operation for a gastric ulcer.

66. **Aluminum Acetate in Smallpox.**—Traeger has found extremely useful for all kinds of abscesses and glandular swellings the local application of aluminum acetate in alcohol. In a recent case of smallpox he applied it also and improvement was evident at once. The fever subsided and the pustules retrogressed, scarcely ever leaving a scar. This favorable experience was repeated in nine other cases during a small institutional visitation of smallpox. Most of the patients were children and these applications reduced the pain and itching so much that the children clamored for them. He used 50 parts of the aluminum acetate to 1,000 parts of alcohol rectificatus; cotton dipped in this was laid over the face and covered with oiled silk. The chest, abdomen and back were also dressed with the same mixture, alternately during three hours. Pitting seemed to be materially checked by this simple means.

Zeitschrift für Kinderheilkunde, Berlin

XII, Nos. 4-5 pp. 227-368. Last indexed March 27, p. 1117

67 Uric Acid Content of Children's Blood. (Harnsäuregehalt des kindlichen Blutes.) E. Liefmann.
68 The Luetin Test Unreliable for Children. J. C. Schippers.
69 *Associated Acquired and Congenital Diseases of the Skeleton. M. Segawa.
70 *Anomalous Roentgen Findings in Child's Thorax. T. Gött.
71 *Megacolon. (Die Therapie bei der Hirschsprungschen Krankheit.) O. Schneiderhöhn.

69. **Congenital Plus Acquired Bone Disease.**—The child in the case reported in detail by Segawa was under constant observation from the day of birth to its death at eleven months. The parents were healthy except that the father is a hard drinker. The child presented typical congenital osteogenesis imperfecta, and on this became superposed both scorbutus and rachitis. The roentgenogram and the microscopic findings are compared with analogous cases in the literature. The work issues from Pirquet's service at Vienna and fills seventy pages.

70. **Anomalous Shadows in Child's Thorax.**—The puzzling Roentgen-ray findings were much alike in the two cases described but the affection was of an entirely different nature in each. In one there was an abscess from rupture of suppurating glands. In the other case there was a hard leukemic infiltration. Both processes had developed in the same tissues and in the same region in the mediastinum so that the shadows cast by both were alike. They differed from the shallow arc or rounding shadow, which Rach has described as typical of a spondylitic gravity abscess, in that the outline was longer and nearly straight. Possibly this straight instead of a curved outline of the shadow may aid in differentiation.

71. **Treatment of Megacolon.**—It is necessary in treatment to determine whether the cause of the distention of the colon is a spasm of the sphincter, or a congenitally normally large bowel, or whether it has enlarged from some mechanical bend or kink on account of abnormal length and the movability of the sigmoid flexure. Four cases are described; 2 were improved by internal measures alone and 2 by operative treatment. Adding these 4 to those found in the literature, Schneiderhöhn has compiled 358 cases of Hirschsprung's disease, and discusses the views of the various authors. The outcome is not known in 39 cases; 179 of the patients died, but the megacolon was not responsible for the death in 11 of these cases. In 110 cases a clinical cure was realized and great improvement in 24. No benefit was apparent in 9 cases. A cure was thus obtained in 30.7 per cent. of the available total, while the mortality was 43 per cent. Of the 151 treated by internal measures alone, only 38 were cured and 14 improved; 79 died, and the outcome is not known in 14 cases. In 6 no benefit was realized. Schneiderhöhn emphasizes that this unfavorable clinical record for internal measures—over half dying and only one-fourth cured—is due to inadequate or inappropriate measures or a too brief course of treatment or to the measures not being applied until irreparable lesions had been installed. Purgatives and enemas he ranks among the unsuitable measures, stating that he has found whole series of cases on record in which death followed almost at once after their application, and generally with the symptoms of acute colitis and perforation peritonitis. He cites some typical examples to illustrate this. Megacolon, he reiterates, is the manifestation of a mechanical closure of the intestinal tract which peristalsis is unable to overcome. Purgatives, enemas and coarse foods add to the distention and cause the bowel to work harder to get rid of its contents. This is liable to entail rupture at some eroded point. The parents often take the child home at the first sign of improvement, and it does not get the full course of treatment and proper aftercare. In the 143 operative cases, the mortality was 36 per cent.; the cures represent 46 per cent. Twelve different operative procedures were applied in the various cases, as he shows in tabulated form.

Analysis of all this material demonstrates that the mode of treatment must be selected for the individual case. We should not operate needlessly but neither should we delay too long with internal measures. They should be given a thorough trial first, combatting with sedatives any tendency to spasmodic contraction in any part of the bowel. If the contracted point is accessible it should be bloodlessly stretched. In other cases the bowel may be rinsed out, with ample drainage provided, reenforcing these measures with massage, electricity and a suitable diet. The above measures will often accomplish the cure if the patient comes under treatment early enough and if it is kept up systematically and long enough. Not only do the symptoms disappear, but the colon becomes reduced in size and the hypertrophied walls retrogress until the bowel functionates normally once more. Internal treatment is particularly liable to succeed in children. As they grow, the anatomic conditions approximate more and more closely to the normal condition in the adult. Of the 38 patients cured by internal measures alone, 31 were children; 12 others were improved. The proportion of children cured by operative measures is no higher than the general proportion of the cured. Of the 69 children operated on, 32 were cured and 26 died. Hence it is wise to hold back from operating on a child until internal measures have been given every chance, unless one's hand is forced by severe symptoms. When an operation is done it should be thorough and not leave conditions that will require further intervention. In a number of cases two operations were necessary; in 7, three; and in one case each, four, seven and eight operations were done. Colopexy or resection at two sittings gave the best results in the cases on record. These correspond best to the causal indications. The congenital enlargement or undue length of the loop may require resection if colopexy does not offer promise of a permanent cure.

Zentralblatt für Chirurgie, Leipzig

May 8, XLII, No. 19, pp. 321-344

72 Modification of Perthes' Compressor to Arrest the Circulation. (Zur Technik der Operation der Kriegsaneurysmen.) K. Steinthal.

Zentralblatt für Gynäkologie, Leipzig

May 8, XXXIX, No. 19, pp. 313-336

73 Radiotherapy in Gynecology. T. H. Van de Velde.

May 15, No. 20, pp. 337-352

74 Spinal Anesthesia. H. J. Boldt (New York).

Zentralblatt für innere Medizin, Leipzig

May 8, XXXVI, No. 19, pp. 293-308

75 What Communities Can Do to Ward Off Epidemics During the War. (Fürsorge der Gemeinden gegen Seuchen im Kriege.) Am Ende.

May 15, No. 20, pp. 309-324

76 *Somnambulism. (Zur Kasuistik des Noktambulismus.) J. Löwy.

76. **Somnambulism.**—Löwy thinks that there are possibly therapeutic hints in the case he reports: A young man with advanced mitral stenosis had severe congestion of the liver and kidneys, and ascites, compensation having entirely failed. At the slightest physical exertion there was arrhythmia and the much dilated heart was so incompetent that he was unable to take more than a few steps without help. The man in the next bed noticed about 1 a. m. one night that the young man's bed was empty and the nurse found at 3 a. m. that a window nearby was open. Suicide was suspected and the yard and the building were thoroughly searched in the dark, cold, rainy night but no trace of him could be found until 5 a. m., when he knocked on the outside of the window of another ward on the same floor and was taken in. He complained only of cold and fell asleep at once, and was unable to explain the occurrence when he roused. The window ledges were narrow and slippery and about one yard apart. It must have required considerable physical exertion to step from one to another, and yet for four hours the young man must have been circling the wall several stories above the ground. The pulse was found only transiently 20 beats above what it had been the day before, and the blood pressure had dropped from 115 to 110 mm. Hg: no other change could be detected. It is evident that in the somnambulistic state there are no nervous inhibitions, and hence the sum total of the work imposed on the heart by physical exertion is less. The physical exertion is made without any superfluous muscular movements, and hence makes less demands on the heart.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 6, XXXVI, No. 36, pp. 561-576

77 *Atypical Pneumonia. (Sul decorso della polmonite fibrinosa.) L. Nelli.

May 9, No. 37, pp. 577-592

78 Radiology and Military Surgery. V. Maragliano.

77. **Atypical Pneumonia.**—Nelli writes from his province in Italy to comment on the peculiarly severe and protracted form pneumonia assumes there, especially in persons who drink much or who are already infected with malaria. Two illustrative cases are described.

Policlinico, Rome

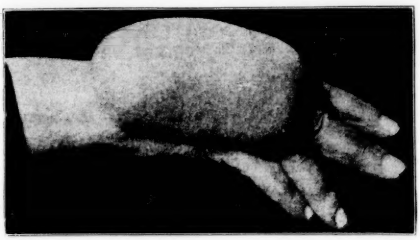
May 9, XXII, No. 19, pp. 621-656

79 *Treatment of Pernicious Anemia. C. Bartolotti.
80 Disturbances from Swallowing Air. (Aerofagia.) G. Genoese.

May, Medical Section, No. 5, pp. 193-240

81 Electrocardiography in a Case of Congenital Defect of the Right Heart. (Vizio congenito del cuore destro.) G. V. Ferralis.
82 *Action of Sugar on Kidney Secretion and on the Circulation. (L'azione degli zuccheri sulla secrezione renale e sulla circolazione nell'uomo.) C. A. Crispolti.
83 Indications and Contraindications for Salvarsan in Syphilities with Other Diseases. (Arsenobenzolo nelle malattie mediche da sifilide.) T. Pontano. Commenced in No. 4.

79. **Serotherapy in Pernicious Anemia.**—Bartolotti has been impressed with the way in which the reds increased in numbers under the influence of antidiphtheria serum. This reaches its height the fourth or fifth day and then gradually declines, but never drops to its former figure. The effect is most striking when the number of reds is small to begin with. Antistreptococcus and antistaphylococcus serums have the same action but it is less pronounced than that of diphtheria antitoxin. He has also noticed that extracts of various organs have a notable influence in this line in severe secondary anemia. On the basis of these data he treated a woman of 38, with severe pernicious anemia rebellious to iron and arsenic, with antidiphtheria serum, giving four injections of 1,000 units each, with intervals of forty, sixteen and twenty-one days. A week after the first injection he commenced combined organotherapy, giving extract of spleen, spinal cord and blood, alone or combined; the daily dose was about 0.5 gm. of the extract, gradually increasing to 2.75 gm. a day and then tapering off. By the fourth day after the first injection of antitoxin the reds had increased from 823,750 to 1,618,000 and by the sixth week to 3,832,000 while the hemoglobin from 35 to 30 had risen to 90 per cent. Nearly six months after suspension of all treatment—the complete course having taken thirteen weeks—the hemoglobin was 95 per cent. and the reds numbered 5,084,000; the blood findings otherwise were also normal.



Flap taken from abdominal wall shares in obesity (Abstract 88).

82. **Action of Sugar on Kidney Functioning and on the Circulation.**—Crispolti has been studying in the clinic the application of the results of Lo Monaco's recent experimental research on the effect of sugar. He apparently demonstrated that small subcutaneous doses of sugar increase kidney functioning to a notable extent, while larger doses reduce the output of urine. The output is also reduced when the small doses are kept up for a long time. Crispolti injected intramuscularly into the buttocks 1 or 5 c.c. of a 100 per cent. solution of saccharose, and tabulates the findings in six persons with sound kidneys, the conditions of the tests about identical in all. The findings cover a period of thirty-two consecutive days in five cases and twenty days in the other case, and are tabulated under fourteen headings. The injections were made daily for a week or ten days and then suspended for equal periods. The findings show that small doses did not modify the blood pressure or the circulation, but that large doses, 5 c.c. of the 100 per cent. solution—increased the blood pressure and the pulse. The subjects also gained in weight on these large doses, showing that they have nutritional value as well. This explains Leo's finding that starving rabbits given a daily intravenous or subcutaneous injection of 1 gm. glucose survived five days longer than the controls. Crispolti found also that the sugar solution had a marked effect on the action of the kidneys, small doses stimulating and the 5 c.c. doses checking kidney functioning. Not only the total output of urine was reduced, but the proportion of urea and chlorids was also reduced. The patients were very thirsty and drank much more water than usual, and they complained of not feeling so well; they lost appetite and some had headache and nausea under the large doses. He thinks the reduced output of urine and of urea, etc., amply explains these vague disturbances under the large doses. On the other hand, diuresis was materially promoted by the small 1 c.c. doses, and the proportion of urea and chlorids also increased. With the small doses there were no disturbances, no excessive thirst, and the mouth was moist; with the large doses the mouth felt parched.

Sugar in small doses seems to dilate the blood vessels while in large doses it has a constricting action on them. This explains the cases in which hemorrhage has been arrested by injection of sugar. It also offers an explanation of the inhibiting action of large doses on diuresis; the vessels in the kidneys of course share in the general constriction. The data thus presented suggest that small doses of sugar to promote diuresis are indicated in all conditions of oliguria from various causes. Large doses, on the other hand, will prove useful to reduce polyuria in diabetes or nervous polyuria if the blood pressure is not overhigh to start with. While the large doses are being taken, the diet should be mostly liquid; this not only tends to prevent harm from the retention that follows the large doses, but it facilitates diuresis.

Riforma Medica, Naples

May 9, XXXI, No. 19, pp. 505-532

84 Dysentery. M. Ascoli.
85 Antagonistic Action on Peristalsis of Elements of Intestinal Content. G. Olino. Commenced in No. 18.

Hospitalstidende, Copenhagen

May 5, LVIII, No. 18, pp. 425-448

86 Centenary of Danish Anatomist, Physiologist and Pathologist, A. Hannover. J. Fibiger. Concluded in No. 19.

Hygiea, Stockholm

LXXVII, No. 7, pp. 353-400

87 Fourfold Reinfection with Syphilis. (Bidrag till reinfektionskasuistiken.) G. Ahman.
88 *Flap from Abdominal Wall Shares in General Obesity. (Hudtransplantation med äreget resultat.) J. Strandberg.

88. **"Obesity" of the Hand.**—A girl of 12 had a defect in the back of her hand remedied by a flap taken from her abdomen. It healed in place and answered its purpose perfectly until late in life. After 30 she became obese. Then the patch on her hand increased in size proportional to the increasing thickness of the abdominal wall, as in illustration.

Ugeskrift for Læger, Copenhagen

May 6, LXXVII, No. 18, pp. 685-730

89 Total Loss of Memory and Progressive Dementia After Attempt at Suicide by Hanging. (Amnesi med fremadskridende Demens efter Suspension.) M. Anchersen.
90 Traumatic Rupture of Kidney or Intestine Without Trace of Injury on the Skin; Two Cases. H. Kaarsberg.

Correction.—The German term *Kriegstyphus*, "war typhus," refers to typhoid, not typhus. This correction applies to Titles 50 and 74 in THE JOURNAL, pages 1882 and 1949, of the current volume.